

MANUFACTURERS' RECORD

A WEEKLY SOUTHERN INDUSTRIAL, RAILROAD AND FINANCIAL NEWSPAPER

Trade-Name Registered in the U. S. Patent Office.

VOL. LVI, No. 16.
WEEKLY.

BALTIMORE, OCTOBER 28, 1909

\$4.00 A YEAR.
{ SINGLE COPIES, 15 CENTS.

Manufacturers' Record.

PUBLISHED EVERY THURSDAY BY THE
MANUFACTURERS' RECORD PUBLISHING CO.
BALTIMORE.

RICHARD H. EDMONDS, President.
FRANK GOULD, Vice-President.
VICTOR H. POWER, Treasurer.
I. S. FIELD, Secretary.

RICHARD H. EDMONDS,
Editor and General Manager.

EDWARD INGLE, Managing Editor.

ALBERT PHENIS,
General Staff Correspondent.

Branch Offices:

New Orleans—1012 Maison Blanche.
New York—52 Broadway.
Boston—170 Summer Street.
Chicago—1116 Fisher Building.
St. Louis—543 Century Building.

Subscription, - - - - - \$4 a year
(payable in advance) to United States,
Mexico, Cuba, Porto Rico, Hawaii and the
Philippines.

To Foreign Countries (including Canada) in
the Postal Union, \$6.50 a year.

[Entered at the Baltimore Postoffice as sec-
ond-class matter.]

BALTIMORE, OCTOBER 28, 1909.

AN UNNECESSARY SHOCK.

"Roosevelt skins all in Washington," was the way the headline in the newspaper read, and some folks, forgetting that it was no longer Anno Domini, 1908, had a distinct thrill along their spinal columns, not to mention the midriff. But a sigh of relief came when the body of the item revealed the fact that the word "skins" was not used as a verb denoting action, more or less characteristic, but referred solely to pickled hides of animals sent by an ex-President from Africa for use by the Smithsonian Institution.

THAT CENTRAL BANK.

About the proposed central bank, the main point to be kept to the front is, What kind of a central bank will be provided in the bill as it passes from the United States Senate to the President for his signature? Ever since Senator Nelson W. Aldrich broached the idea hazily and indefinitely there has been much talk and more writing about a central bank. Nursed with care evidently, the verbal or written discussion has dealt principally with generalities referring to the supposed advantages of some sort of a central bank. That is not the kind of discussion calculated to benefit the people of the country and its financial institutions. The agitation in its present form smacks too much of the policy of seeking to promote a particular end for a special interest by occupying the good mind of the public with a general but indefinite promise of benefit to the public.

It will be recalled that two or three years ago there was pushed to the sur-

face of things a widespread movement looking to a supply of cheap fuel for industrial purposes. There was a pressing demand for such fuel, and the possibility of a supply from the economic standpoint was clearly demonstrated. The public press was supplied liberally with literature bearing upon the subject, and supplied apparently from a thoroughly equipped and wealthy publicity bureau. The movement crystallized in a bill before Congress known as the "free denatured alcohol bill," providing in the main that alcohol rendered non-potable and intended for industrial purposes should be freed from the internal-revenue tax. Even when the bill left the House of Representatives the general public and many individuals contemplating the manufacture or the use of the new fuel believed that the bill was all that it pretended to be—a means of giving opportunity for the manufacture of a cheap fuel. But in the Senate it was taken in hand by an expert in such matters, hurried through in the closing days of the session without the public being aware of changes made in it or the effect of such changes, and, by the time the administrative details had been arranged, it was discovered that reliance upon "free denatured alcohol" as a cheap fuel was an empty dream.

There is so much about the promotion of the central-bank idea identical with the promotion of the free denatured-alcohol idea that the intelligence of the country should demand that those advocates of the central bank who will be influential in the House of Representatives and in the Senate in framing the bill embodying the central-bank idea shall give to the country straight, clean-cut statements of the vital features of the bill, so that the trained minds of the country may be in a position to inform the people of the certain workings out of the bill, to the end that a well-grounded movement for necessary reforms in American finance shall not be permitted to be debauched in the legislative process and made the pretext for a law that will intensify financial ills.

STUDENTS IN TENTS.

Col. R. T. Milner, president of the Agricultural and Mechanical College of Texas, is quoted by the Dallas News to the effect that the college now has 800 students, and that for the accommodation of the overflow more than 100 tents have been erected on the campus. Eight years ago, when there were but accommodations for only 350 students, Governor Sayers urged the Legislature to provide for a student body of 1200. His recommendation has been justified by subsequent developments, and the authorities should lose no time in making adequate provision for the young men of the State who desire to be trained along the practical lines that will equip them to render efficient service in the great development that is before Texas. Those lads should be taken in out of the wet.

CAUSE OF GOOD ROADS VITAL TO THE SOUTH.

In a great religious convention held in the South a few years ago the president, in his annual address reviewing the religious activities of his denomination, urged that it was incumbent upon the members and active church workers of the South to aid to the utmost of their ability in securing the building of good roads. "Of what avail," said he, "will be our efforts to advance the building of churches in the smaller towns and country districts of the South if impassable roads for five or six months of the year make attendance impossible?" The building of good roads, as he regarded the subject, was a Christian duty, and among the activities suggested by him for work for the advancement of religious life in the South, the awakening of the people to the importance of good roads was stressed as one of the essential things. No man who studies the matter can look upon it in any other light.

It is doubtful if there is any greater influence for the betterment of life, the advancement of every influence of civilization, Christianity and education and the material upbuilding of the South than that of good roads. Transportation is the fundamental thing in all human affairs. We must move from place to place; we must travel by rail or water or land; goods of all kinds, the product of the farm and of the factory alike, must be transported. The produce of the farm is valueless until it reaches a buying market. The cheapness and facility with which that market can be reached sets the question of profit or loss on the raising of the stuff, and sets the value, by reason of the profit or lack of profit, on the land on which it is produced. We cannot get away from transportation. We have too long associated transportation with the thought of railroads. The railroad is only a factor in transportation. Primarily, transportation comes down to the moving of things from the farm and the mine to a town or the factory, or the moving of people by buggy or wagon or other conveyance from place to place.

The advance made in human affairs by the building of railroads is scarcely greater than would be the advance made if the same energy, the same vast expenditure which is put into the building of railroads could be turned into the building of good highways. If suddenly overnight throughout the land the more than a million miles of country roads could be transformed from a bad condition, and at times almost impassable condition, to first-class roads, the increase in the profits of the farmers, the development of the business interests of the country, the possibilities of advance in education and religious work would be beyond comprehension. We may not be able overnight to work such a miracle, and possibly we will appreciate the achievements all the more after the struggle necessary to securing them. The people who are broadminded enough and energetic enough to build good roads will be the people who will get the benefit.

It is to be regretted that the backward community, like the backward man, cannot share equally in human advancement brought about by the stimulation of good roads, but it is one of the laws of existence that he who achieves must work. The community that desires advancement in material things as well as in higher things must be willing to work and pay the cost. The county or town that wants the value of good roads must be willing to labor unceasingly for them and to bear the burden of getting them, and yet this burden is really not a burden. It is one in name only, for there is scarcely a well-populated community in all this country whose prosperity by the building of good roads would not be greatly increased beyond the cost of the construction of such roads. The building of these roads is not a luxury—it is an investment returning in a hundredfold or a thousandfold. It is an investment that makes for the advancement of the comfort of the people, for the enlargement of their profits, for the betterment of every condition under which mankind exists.

In this issue of the MANUFACTURERS' RECORD we have undertaken to group such a presentation of the road question as has never before been given in any publication in this or probably any other country. We have gathered into pages 71 to 117 the views of many men from many parts of the South on this great question. Governors of most of the Southern States have briefly expressed their realization of the importance of good roads. More than five hundred county officials have written us about what is the sentiment in their community, all of which is published in this issue. Here, too, will be found the three prize essays recently awarded by the MANUFACTURERS' RECORD for the best articles in favor of good roads and how to secure good roads for the South. In this competition there were many papers excellent in many respects. Quite a number, in addition to those for which the prizes were awarded, have been selected for publication; some will be found in this issue, some in later issues.

Of other features one of the most striking is an illustrated article telling of the changes already wrought by road improvement in the thickly settled country immediately surrounding Baltimore; another, also illustrated, giving a comprehensive survey of highways in New England, which, as a section, probably leads the country in this respect. Other illustrated articles deal with the highlands of the South, where several important problems will be solved by the building of first-class roads.

Taken as a whole, this special issue presents a story about good roads for the South and a broad discussion of the subject from every point of view, such as we believe has never before been attempted.

THE DRIVE AGAINST SOUTHERN COTTON MILLS.

Southern textile interests may view with comparative equanimity the latest performances of antagonism to them on the part of the United Textile Workers of America in its convention at Washington. For 10 years there has been a persistent drive against the managements of Southern cotton mills by agitators of various kinds. Some of it has been open; some of it despicably underhand. Good-hearted Southern men and women have been misled by sensational penny-a-liners, by hireling agitators of various stripes, compelled to devise a reason for receiving their hire, and by emotionalists prone to come to the front in any movement holding the public eye temporarily. Paid agents of organized labor, seeking to further its selfish ends, have been introduced to sympathetic Southern audiences as pure, disinterested philanthropists. Other agents, working behind a mask, have sought to organize discontent among the operatives and to bring about strikes and other disturbances. Attempts to maintain dividends in other parts of the country at the expense of wages of employees have been justified by romances about the competition of Southern mills. An executive of a New England State has sent his secret-service employees into Southern mill centers for purposes best known to himself. Eclectic photography has aided the misrepresentations of ignorance and the would-be deception of plain, unvarnished lying. The United Textile Workers have been the mudsills of the noisome agitation that has disgraced the civilization of the country and has reflected upon its intelligence in some quarters.

In the meantime managements of many cotton mills in those Southern States, especially where the agitation has been most persistent, have steadily pursued the policy of looking to the best interests of employees, which has been the natural instinct of mill managements ever since the cotton mill came to the front in the South 60 years ago as one of the best agencies for setting a neglected class of white people upon the path to betterment on all lines. Typical of what has been accomplished are the results in South Carolina, broadly sketched in the current issue of the *South Atlantic Quarterly* by Mr. Thomas F. Parker, president of the Monaghan Mills of Greenville, S. C. He traces the growth of the cotton-mill industry in his State from the small revival in the poverty of 1880, when there were but 18 mills, with 2000 looms, to the splendid exhibit of 1908, with more than \$100,000,000 invested in mills, with mill-village populations aggregating 150,000 persons and with payrolls approximating \$12,000,000 a year. He tells of the improvement, the marked improvement of surroundings in mill villages over the poverty of the isolated farms from which thousands of raw recruits have been drawn to be transformed into a disciplined army of well-to-do wealth-producers, and in conclusion he says:

Passing over what the mill has done for a child in moving it with the entire family many miles from hopeless isolation and poverty into close touch with the best civilization of the State, let us consider what educational influences a child as now found in a mill village is most in need of. Considering his antecedents and environment, should they not include his family and neighbors, and could these be given other than an industrial education? Should this not be accompanied by discipline, stimulating examples, and immediate and adequate reward of effort in money and promotion? This is what the mill furnishes, and a combination

of an ordinary day school for the child and of night classes for adults, with the industrial training alternating with the other, makes a practical self-supporting system of education of much merit.

The child is thus surrounded by a genuine atmosphere of work with the economic forces at play. He acquires the habits of industry, and with them a desire for the good things of life which he sees others securing by their own exertions. The mill has set such a child's feet on the ladder of a rapid, beneficial evolution, and results show that in most cases he climbs; for many mill operatives of South Carolina with unpromising antecedents are now earning a wage nearly equal to that of store clerks and school teachers who had many advantages at the start.

The fact is that many operatives will gradually climb out of and above the mills into other employments, unless fabrics are constantly improving and the mills can thereby continue to offer a higher and higher grade of work. Indications are not lacking that, in spite of the latest machinery and increasing efficiency, the labor demand of the State may before long outstrip its supply, and that South Carolina, with its great diversity of natural resources and its hostility to inferior foreign immigrants, may have high-priced instead of cheap labor. Already, with its developing labor conditions, South Carolina's dependence for future extensive expansion in cotton manufacturing is in advanced business methods and a constant progress in the fitness and the quality of the goods manufactured.

The practical common-sense philanthropy here described is by no means monopolized by South Carolina. It is manifested in the other cotton-manufacturing States of the South, and, if any check is given it, the hampering will be due not to any voluntary restraint of natural instincts among Southern mill managements or among the managements which represent ownership not Southern, but solely to the machinations and the hostility of deluded or self-seeking interests elsewhere.

NOT ENOUGH CARS FOR PRESSING BUSINESS.

Once again, after an interval of two years, talk is heard of car shortages. When the business depression was at its worst there was a surplus of more than 413,000 cars. That was only 18 months ago, and people who did not realize the recuperative vigor of our country doubtless fancied that several years would pass before that surplus would be overcome and a shortage exist. Yet there is already a lack of cars in the Eastern and Southern States, something more than 23,400 being the excess of demand over supply. To be sure, in the West and North there are nearly 36,000 more cars than are required to handle present business, so that there is a surplus of about 12,500 cars, which, considering the crop movements and the onward rush of business, really amounts to a shortage.

As might be expected at this season, the coal operators are among the worst sufferers from the lack of railroad equipment, and it is stated that a big mining corporation, which is one of the largest producers of bituminous, is 100,000 tons, or 2000 cars, behind in its deliveries, a statement readily believed when the enormous annual consumption of soft coal is remembered. To make up this shortage in fuel deliveries would require 40 trains of 50 cars each, a big load for one locomotive on the average railroad. Of course, it will require some maneuvering of equipment, some patience on the part of consumers and some diplomacy by the coal operators to keep everyone content and supplied with actually needed coal until sufficient of the cars in use are released to relieve the demand for equipment.

Happily, a few railroad companies anticipated conditions and are prepared to meet them. Others have also been

liberal of late in placing orders for equipment to prepare for business next year. Among the recent purchasers of new cars, engines and rails are the Pennsylvania, the Baltimore & Ohio, the Rock Island, the Louisville & Nashville, the Atlantic Coast Line, the Norfolk & Western, the Seaboard Air Line, the Chesapeake & Ohio, the Southern and sundry other companies. Some of these contracts are big, running up well into millions of dollars. Most of the equipment bought is of the heaviest types for freight service, including engines capable of hauling immense trains and cars of large capacity, all of which conduce to keeping operating costs on a low level. Were it not for the monster locomotives and huge freight cars of today, the railroads would not be able to furnish transportation at such low rates per ton per mile that they are the wonder of foreign railroad men (excepting such as have studied conditions here), who, knowing our comparatively high rates of pay for railroad employees, find it difficult of comprehension that service should be given the public at tariffs which would be ruinous in Europe.

Notwithstanding the liberality of equipment orders now being reported, there remains much yet to be done before our supplies of rolling stock can be considered equal to demands. As matters now stand, the railroads are near the danger point which they reached little more than two years ago, when freight congestion was so serious that traffic experts were puzzled to relieve it. But, as great as was the rush of commerce over the rails then, it will be dwarfed to minute appearances by comparison with the tide of traffic which will crowd our transportation lines in the next year or two at the most, according to the careful judgment of students of conditions. There are from 12,000,000 to 14,000,000 persons being added to our population every 10 years, or more than 1,250,000 per annum. These figures alone are enough to show that our freight traffic is increasing tremendously, even if we did not think of the growing consumption of practically every individual of the population.

Railroad operating officers are calling for action by boards of directors to meet coming requirements, but at present it is doubtful whether the situation will be adequately met.

A "SOUTHERN COMMERCIAL CONGRESS" OBITUARY PLEA.

As a float for the life-line cast for the purpose of obtaining for its expenses "voluntary payments in advance of \$25 by commercial organizations," the "Southern Commercial Congress" commits itself to the following:

We cannot refrain from expressing our regret that the MANUFACTURERS' RECORD of Baltimore has steadily denounced the Southern Commercial Congress from September, 1908, to date. Its latest method is to repeat in its *Daily Bulletin* the attacks appearing in the weekly issue.

We wish at this time and place to bear testimony to the good work done by the MANUFACTURERS' RECORD along statistical and news lines. We only regret that in its editorial comments it should oppose any effort of Southern bodies and leaders to pull together for the common good.

A warm friend of our work living in Lexington, Ky., makes the following reasonable comment: "If the Southern Commercial Congress is a bad thing, it will die of its own accord through lack of merit. It is surely not necessary to stamp the life out of it with both feet."

The comment of the warm Kentucky individual is based upon false philosophy. Money, energy and enthusiasm wasted upon an undertaking worse

than useless are wasted for all time. Commercial bodies in progressive Southern communities have no money, no energy, no enthusiasm to waste. The secretary of one of the many live commercial bodies of the South that have not nibbled at the "Southern Commercial Congress" bait sizes up the situation admirably when he writes to the MANUFACTURERS' RECORD:

The comment of the Kentucky gentleman as to the death of the organization is to the point, but funerals are costly amusement or diversions, as we of the South have reason to know.

PRACTICAL ADVICE.

Mr. H. C. Chappell, editor of *Thousandsticks*, Hyden, Ky., writes to the MANUFACTURERS' RECORD as follows:

I am very much pleased with your journal, and think it is a wonderful power in helping to develop the South. I notice that you will issue a "Good-Roads" edition on October 28, and I am looking for that issue. If there is anything that we need in the mountains of Eastern Kentucky, it is good roads; it is a burning question. It is a problem that will mean more for the material advancement of this country than any other one thing.

In his editorial columns Mr. Chappell says:

On October 28 the MANUFACTURERS' RECORD of Baltimore, Md., will publish a special good roads edition. We wish that every business man in the mountains of Kentucky could get a copy of this journal. The worth of the information from an issue of a paper like this cannot hardly be estimated. It will give the progress of public roads building of the entire South, besides many good articles upon the importance of good roads and their worth to any community. The reason the people of the mountains do not realize the value of good roads, they do not have them. If the idea could be impressed upon all the people all the time that good roads more than pay for their making in a very few years, it would not be very long until the people would begin to take an interest in that kind of investment.

We desire that this copy of the MANUFACTURERS' RECORD be read not only by every Southern worker for good roads, but by every other progressive citizen, so that he may be led to swell the ranks of the road builders.

DRAINING WET LANDS.

To reclaim about 15,000 acres of rich alluvial land along the Yalabusha and Schoona rivers in Mississippi a canal will be cut for a distance of nine miles at a cost of between \$50,000 and \$60,000. The canal is to extend from a point about two miles beyond the eastern line of Calhoun county to a point west of Derma. Much of the land to be reclaimed by the removal of the excess water through the canal was once heavily timbered with white oak, hickory, gum, red oak and other hardwoods—a sure indication of soil fertility. In its present condition this land, which is said to be capable of producing 40 bushels of corn or a bale of cotton to the acre, can be bought at from \$10 to \$20 per acre. The project is one of many contemplated or under way in Mississippi, Louisiana, Arkansas and other States in the South that will gradually restore to productive enterprise the bulk of 55,000,000 acres of soil only awaiting the admission of light and air to blossom as the rose.

C. B. Lynch, secretary Tulsa Investment Co., Tulsa, Okla., writes:

I have been a subscriber to the MANUFACTURERS' RECORD for several years. I would not be without it. I consider the MANUFACTURERS' RECORD a business man's necessity, as every issue is bristling with good sound reading matter, giving the facts just as they are over the country, which should appeal to the business world in general.

TO GOBBLE UP THE FARMERS' UNION?

Mr. Charles S. Barrett, national president of the Farmers' Union, is quoted as expressing, in his enthusiasm for a central agricultural university under the auspices of the Union and to be fed by a chain of local farm schools, the belief that all the backing needed will "come from our own people and from the people of the South." But in the next breath he is quoted as having found Dr. S. A. Knapp of the National Department of Agriculture, in charge of Farmers' Co-operative Demonstration Work, enthusiastic over the prospect and as classifying the idea as one of the farthest-reaching and most constructive ideas in the history of the country. President Barrett is probably unaware that this Farmers' Co-operative Demonstration Work involves a quasi-partnership between the United States Government and the \$52,000,000 Educational Trust of New York, the latter supplying \$75,000 or \$100,000 a year for the agents in the South under the direction of Dr. Knapp. President Barrett probably does not know that two years ago the chairman of the \$52,000,000 Educational Trust was quoted in reference to this Farmers' Co-operative Demonstration Work as follows:

The work of spreading the study and application of agricultural improvements in three or four of the Southern States which the Board began when the first \$1,000,000 was received from Mr. Rockefeller, said Mr. Gates, can now be enlarged so that information about better farming methods can be spread throughout the entire South. Only the interest of the first \$1,000,000 could be devoted to this agricultural work because of the "higher education" clause in the second or \$10,000,000 donation. Where the work has been carried on the improvements in farming have been so marked that Mr. Gates says that Southern bankers will not lend money now to men who do not follow the methods taught by the Board's instructors.

Intent rather than accomplishment was apparently revealed in that quotation. Be that as it may, it may be suggested that President Barrett handle cautiously the Farmers' Co-operative Demonstration Work, the Ogden Conference for Education in the South and any other ramification of the \$52,000,000 Educational Trust, lest he and the Farmers' Union, acting with the best motives, be gobbled up by the Educational Trust before they have had time to wink. It is an aggregation that the farmers of the South can well afford to keep at arms' length.

ON MAKING WANTS KNOWN.

As a feature of the work which he has successfully and progressively maintained for about 15 years in attracting capital of men and money to the wide section of the South served by the Southern Railway, Mr. M. V. Richards of the land and industrial department of the railway is using the "Classified Opportunities" department of the MANUFACTURERS' RECORD as a means of reaching individuals likely to be most interested with definite information about divers industrial and business propositions whose success as contributing to the general advance of the South the Southern Railway makes it a part of its business to further. In this issue of the MANUFACTURERS' RECORD Mr. Richards presents no less than twenty-two such opportunities in the shape either of industrial plants only needing additional capital or of locations where surroundings are favorable to the establishment of productive enterprises or of mineral and timber lands, etc.

The policy adopted by Mr. Richards

for the Southern Railway is one that should commend itself to other railroad managements and other large corporations operating in the South. Just as individual advertisers use our "Classified Opportunities" department freely to call attention to openings in the South for capital on many different lines, giving specific details about them, so companies or corporations which are occupied in working out extensive propositions in the Southern field will find it to their interest to adopt the same medium for giving publicity to immediate wants that may develop as accompaniment of their broad work or to the opportunities for others to which such work may give birth.

ARKANSAS RICE.

Notable in the wonderful development of rice-growing in trans-Mississippi States during the past few years is the success of the culture upon the prairie lands of the Arkansas. There are records of great crops per acre made in that State in the past two or three years, and it is stated that the cashier of a bank at Lonoke has offered to deed a farm of 160 acres of rice land to anyone who will give him the crop of rice of one year only. This land is held at \$40 an acre, but it is claimed that the rice crop would bring \$75 an acre. This may be an exaggerated estimate, but the opportunities for rice culture in Arkansas are indicated by the fact that in a State where hardly a handful of rice was raised at the beginning of the century, 11,400 acres yielded last year 467,400 bushels, valued on the farm at \$430,008—an average yield per acre of 41 bushels at an average price of 92 cents per bushel, when the average yield for the South was 33.4 bushels per acre at an average price of 81.2 cents a bushel.

Mr. George B. Robertson, superintendent of the sawing department, Jackson Brothers Co., Whaleyville, Va., writes to the MANUFACTURERS' RECORD:

We think your magazine one of the best published, and it has been a great help in letting the people know the South has lots of territory for people in every line of work.

WIREGRASS GEORGIA.

A meeting is scheduled for this week at Macon to further a systematic movement for the attraction of desirable settlers to "Wiregrass" Georgia. An article in last week's issue of the MANUFACTURERS' RECORD by Capt. W. L. Glessner gave a graphic description of the wonderful changes wrought in that section of Georgia during the past 15 years and suggested the many opportunities still remaining there for thrifty settlers. The Macon movement hopes for a million more people. Should even half that number be attracted, the agricultural productivity of Georgia will be vastly enhanced and the wealth of the State largely increased.

THE COTTON MOVEMENT.

In his report for October 22 Col. Henry G. Hester, secretary of the New Orleans Cotton Exchange, shows that the amount of cotton brought into sight during 52 days of the present season was 3,190,977 bales, an increase over the same period last year of 248,262 bales. The exports were 1,539,106 bales, an increase of 193,168 bales. The takings were, by Northern spinners, 263,217 bales, a decrease of 102,615 bales; by Southern spinners, 367,233 bales, an increase of 28,516 bales.

The Union Hog Ranch of Houston, Tex., has acquired 5000 acres of land between Orange and Beaumont, upon which it will raise hogs for market.

SPEAKER OF THE HOUSE AND WATERWAYS.

By ALBERT H. SCHERZER of Chicago.

[Written for the Manufacturers' Record.]

Every American is proud of the achievements of our great railway builders. Within a comparatively brief period of time more than 250,000 miles of railway track have been constructed, representing an investment of more than \$15,000,000,000, about one-eighth of the entire wealth of the United States. Through the progressive spirit of our railroad builders the railroads have reached a very high degree of efficiency and public service, but a modern civilized nation requires something more than railways for its internal development and to reach the great foreign markets of the world. It requires the development and improvement of its rivers as great internal waterways, not only for the accommodation of its internal commerce, but also as an economical means of direct communication with every seaport and country in the world. The most highly developed countries are the ones which not only have efficient railroad service, but also have deep waterways connecting their interior districts with the sea.

The most important waterway project for the future welfare of the United States is the deep waterway connecting the Great Lakes with the Gulf of Mexico by means of the Mississippi River. The Mississippi is one of the greatest and most valuable river systems in the world, and this waterway connecting the Great Lakes with all the oceans of the world through the Mississippi and Gulf of Mexico should be made a great ship channel to harmonize with the greatness of the Mississippi river, the very large area of the United States, its wealth, manufacturing, commercial and industrial possibilities. The great Mississippi River should not be dwarfed and strangled to the capacity of a nine-foot barge canal. A barge canal might serve the needs of some small European countries having the area of one of our smallest States, but such a nine-foot barge canal cannot serve the needs of the great empire of States lying both east and west of the Mississippi River.

To get an idea of the importance of the Mississippi River to the United States it is only necessary to glance at a map of England. The area of England is 50,852 square miles. The smallest State west of the Mississippi River is Iowa, which has 56,000 square miles of area; but compare Iowa's transportation facilities with the transportation facilities of England and you will find that England has more than 30,000 miles of railroad tracks; that it is almost completely surrounded by the sea, and that its coast is indented by arms of the sea and navigable rivers, the Thames, the Tyne, the Mersey and others, able to float into the interior of England any vessel that navigates the oceans of the world. There is no city in England more than 75 miles from deep sea navigation facilities. The sea and rivers of England bring the commerce and wealth that enable the railroads to earn and pay dividends on a capital of \$250,000 per mile. The State of Iowa, on the other hand, is isolated from other countries, being located more than 1000 miles away from the seacoast. Can it or its railroads ever attain their full measure of commercial and industrial development without bringing an arm of the sea a little nearer, if not within 75 miles of its border, at least within 200 miles? The other larger States or empires west of the Mississippi River are too numerous to mention here. The great State of Montana alone contains 146,000 square miles, or nearly three times the area of England. Montana has vast mineral and agricultural resources, yet it lies so far

from the sea that these resources must remain largely undeveloped until such time as an arm of the sea can be brought a little nearer to this great inland empire.

Even if every river in the United States were developed, vast areas of our country would remain untouched and without the facilities for transportation by water already provided in England, Belgium, Holland, Germany, France and other civilized countries. Whose duty is it to furnish this economical means of transportation for the United States? If a railroad company should be negligent of its own interests and fail to furnish needed transportation, it is very easy to locate who is responsible; primarily, the president of the railroad company and the board of directors. Is not the responsibility for the lack of transportation on water equally easy to locate? The Federal Government exercises supreme control and dominion over all the important rivers in the United States. Then the President of the United States and the Speaker of the House of Representatives are primarily responsible for this very great trust. If either of them is indifferent and does not or will not act, nothing whatever can be done. The late President of the United States could not be charged with a failure to call attention to the need of this means of transportation or the desire to furnish the same without delay. He has stated in his message to Congress, transmitting the report of the Inland Waterways Commission, as follows: "The Mississippi should be made a loop of the sea, and work upon it should be begun at the earliest possible moment. Only less important is the Atlantic inner passage, parts of which are already under way. The inner passages along the Gulf coast should be extended and connected with the Atlantic waters. The need for the developing of the Pacific coast rivers is no less pressing. Our people are united in the support of the immediate adoption of a progressive policy of inland waterway development."

The President of the United States is absolutely helpless to do anything whatever without the co-operation of the Speaker of the House of Representatives. As long as the Speaker does not provide funds for the execution of such works, nothing whatever can be done. It has been repeatedly demonstrated that it is impossible to make such great permanent improvements from periodical appropriations. Such a policy is extremely wasteful, and accomplishes very little. The only businesslike method is to build these great public works, which will endure for ages, in the same manner that railroads, great industrial undertakings and other works of a permanent nature are built; that is, by means of bond issues, the same means that are used to build the Panama Canal.

If the Speaker of the House of Representatives says "yes" to the bond issue, the Mississippi River will be improved and become an all-powerful aid to commerce and to national defense. As a mere by-product more than 30,000,000 acres of the most fertile and favorably located lands in the world will be released from overflow, to the infinite benefit of everyone in the United States, including the railroads, for anything that benefits the United States benefits the railroads, which form such an exceedingly valuable part of the United States. If, unfortunately, the Speaker of the House should say "no," then the Mississippi River will continue to overflow its banks, with loss of life and vast destruction of valuable property, blocking the progress of civilization in the United

States. Millions of people are anxiously awaiting a favorable decision from the Speaker. A statesman rarely has so great an opportunity of benefiting mankind.

BUILDING AT MIDDLESBORO.

Many Handsome Residence and Business Houses Completed.

[Special Cor. Manufacturers' Record.]

Middlesboro, Ky., October 20.

The continued progress in all branches of business here is very gratifying, and the municipal improvements set a pace that makes it hard for individuals to follow. Dwellings are going up in all parts of the city, and the price of good building lots is going up, too. Mr. E. H. Ould, capitalist and retired wholesale grocer of this city, has recently made large investments in Middlesboro real estate, and has erected six of the nicest dwellings in the city, all of which were rented before completion. Mr. A. H. Kemey has completed his cottage on Chester avenue and has rented it to C. E. Cleland, cashier of the Middlesboro National Bank. Wm. J. Kinnaird has completed and moved into his handsome new dwelling-house on West Cumberland avenue. Dr. J. Gaines Moss has completed a new house on West Cumberland avenue, and it is occupied by Mayor Emil S. Hilburn. On West Gloucester avenue Mr. M. Woodsin of the Middlesboro Supply Co. has completed an up-to-date residence, and it is already occupied by Don. K. Price of the Louisville & Nashville Railroad Co. The fine new residences of B. T. Milam at Cumberland avenue and 25th street and John Yeager at Dorchester avenue and 25th street have been completed and are now occupied by their owners. Mr. Thos. Atkinson has secured a permit for the erection of a modern dwelling on Cumberland avenue and 25th street, and will proceed rapidly with the work of construction. A large number of nice five and six-room cottages have recently been built on East Cumberland avenue, and the East End is rapidly being filled up with the families of newcomers.

The Virginia Iron, Coal & Coke Co. is spending about \$50,000 in getting its two furnaces ready to put in blast, and is accumulating large quantities of material at its plant in the northern part of the city to be prepared for work as soon as the repairs are completed.

W. J. Callison has sold his handsome three-story pressed-brick store on Cumberland avenue to the Middlesboro Dry Goods Co., which is a \$75,000 company formed to carry on a wholesale dry goods business here. Mr. Callison purchased from the Yellow Creek Land Co. the two lots at the northwest corner of Cumberland avenue and 21st street, and is erecting a beautiful four-story building, 50x100 feet, of white pressed brick, with dark-gray trimmings.

The Citizens' Bank & Trust Co. is having a new concrete foundation placed under its handsome block at the northeast corner of Cumberland avenue and 20th street.

The two lots at Cumberland avenue and 20th street were recently purchased by R. C. Ford, W. J. Kinnaird and W. E. Cabell, all of this city, from the late Col. Thos. E. Swope of Kansas City for something in excess of \$100 per front foot. They will erect a business block on the lots.

M. E. Motch and F. M. Moomaw, both of this city, will erect two-story office building on their lots on Cumberland avenue and 20th street. The building will be 25x130 feet, two stories high, and constructed of pressed brick. It will be handsomely furnished and modern in all its appointments.

The city has been going forward very rapidly during the past two years, and there are more improvements under way

row than at any time for several years. Sanitary sewers have just been completed in 25th street, 24th street, Gloucester avenue and through blocks 107 and 307 north-east section, and in 22d street, Chester avenue, Winchester avenue and Exeter avenue, section southeast. A concrete storm sewer, 3x6 feet, extending along 20th street south from the canal about a quarter of a mile is under construction, with 200 feet already completed. This will drain the entire "Southside," and will add thousands of dollars to the value of property in that part of the city. The connecting link from the end of Avondale avenue, in the East End, to the Government road has just been completed, and Avondale avenue macadamized to 10th street. Exeter avenue and 22d street are under construction now, and will be macadamized in most up-to-date manner. Lathbury avenue from 18th to 20th street has been opened up, requiring a bridge across the canal. This bridge has concrete piers and abutments, and is 80 feet in width and 100 feet long.

Another bridge 100 feet in width, with concrete abutments, is nearing completion on East Cumberland avenue at 13th street. The new concrete pavements are laid on both sides of Cumberland avenue from 10th to 18th street, making them now continuous from 10th to 26th street, some distance over a mile. The Gibson-Corr Company, contractor, has under construction pavements on both sides of 24th street, both sides of 25th street and both sides of Gloucester and Dorchester avenues.

Judge J. S. Manring has just sold a one-half interest in the Manring Theater to Mr. J. G. Sterchi of Knoxville, Tenn., and extensive improvements will be made.

The First State Bank is about completed, the interior finishing and decorations being nearly done. The bank will open for business on November 1, and will occupy its own two-story brick building on the south side of Cumberland avenue.

The Mountain Products Company has recently installed mill and water motor, and will manufacture meal and flour.

The Middlesboro Mattress Factory is running on full time, and Will and Harry How have organized the Middlesboro Broom Factory and have a creditable output. They have offered inducements to the neighboring farmers to raise broom corn, and expect to build up a large industry here.

JOHN HOWARD.

IN THE HEART OF TEXTILES.

The Cotton Mill Industry in Spartanburg's Development.

[Special Cor. Manufacturers' Record.]
Spartanburg, S. C., October 25.

Of the towns that typify modern development in the Piedmont region of South Carolina, Spartanburg stands in the front rank. The State has made an enviable record in cotton manufacturing, having passed many competitors, and today is closely following Massachusetts. Spartanburg has 37 mills, with 671,941 spindles and 19,500 looms, consuming 250,000 bales of cotton annually and with an output valued at nearly \$25,000,000. It boasts of being the "Lowell of the South."

The seven banks and trust companies of the city have a combined capital and surplus of \$1,640,000 and deposits of \$2,500,000. The assessed value of the property of Spartanburg county is \$20,000,000, and land values are rapidly increasing both in city and country. It is the second county in wealth in South Carolina.

Spartanburg is in the heart of the famous Piedmont region, 200 miles from Atlanta, 300 miles from Richmond and 130 miles from Knoxville. It is at the junction of the main line of the Southern Railway from Washington to Atlanta,

with its line connecting Charleston and the Northwest. It is also the terminus of the C. & W. C. Railway, connecting this city directly with Augusta, Savannah and Florida. With the completion to it of the Carolina, Clinchfield & Ohio it has become a terminus also of the only great trunk line from the Northwest to the Atlantic States south of Virginia, and gives to Spartanburg railroad facilities of exceptional advantage.

The recent opening to public travel of the Carolina, Clinchfield & Ohio establishes a connecting link long desired between the Middle West and the Carolinas. The line is now under operation from the coal fields of Russell county, Virginia, through the States of Virginia, Tennessee and North Carolina to Bostic, N. C., where connection is made with the Seaboard Air Line on the line to Charlotte and Wilmington, N. C. Construction work is so far advanced south of Bostic that trains will be operated to Spartanburg on the 29th of this month, while the work of extending northward from the Virginia coal fields to connection with the Chesapeake & Ohio at Elkhorn City, Ky., has already been undertaken.

Apart from the splendid railway facilities enjoyed by Spartanburg, it has an up-to-date modern electric street railway, with its lines running far into the country, which furnish excellent service to passengers. There are two power companies here, selling cheap power to individuals and to manufacturing companies. The Piedmont Directory Co. has recently estimated the population of Spartanburg proper at 24,485, and mills nearby, with their villages, would most likely double this figure.

Spartanburg has recently expended more than a quarter million dollars in improving its streets, putting down the best paving which could be procured, and many committees have come here to see and pattern after these roadways. The city has two noted educational institutions, Wofford College for young men and Converse College for young women, both of which are of the highest grade and draw freely from surrounding States. Within reach of the city is the State institution for the deaf, dumb and the blind, at Cedar Springs, where for years Dr. Walker has been doing a noble work for humanity. The schools of the city have an enrollment of 3512, with 60 teachers in charge. There are 22 churches in Spartanburg. It has a flourishing Young Men's Christian Association and a splendid free public library. Spartanburg people have pride in the great South Atlantic States Musical Festival held once a year. Damrosch himself has pronounced Spartanburg "the mother of them all" when referring to musical festivals. This event brings to Spartanburg artists from all over the continent and even from Europe. The enthusiastic support given to the festival by the citizens has made it a financial success from the outset, as well as an artistic one. The Lyceum brings to Spartanburg many of the leading orators of the nation annually, and is another culture unit.

The county produces 50,000 bales of cotton, a large portion of which is consumed in the mills in the county. Aside from the mills there are other manufacturing enterprises. Money is easy for all legitimate enterprises, and capital is sufficient for the needs of business. In speaking of the growth of this city Mr. Frank T. Graham of the Spartanburg Realty Co. said:

"Our city grows of itself. In 1870 it was a village of 1050 people; today we have grown to a population of 24,485. Our growth in wealth has more than kept pace with our growth in population. Our progress is largely due to the safety and

soundness of our way of doing business. We never bite off more than we can chew. Conservatism with a business lever, looking toward a healthy growth, is one of our characteristics. The very fact that there has not been a commercial failure here involving over \$3000 in 15 years, and only two such failures in 30 years, is proof that we are a stable and safe place for development. Our county, of which Spartanburg is the county-seat, has the largest white population in the State, and is the second in wealth, with an actual value of not less than \$75,000,000. Our farm lands, which produce 50,000 bales of cotton annually, have increased in value in the past decade from \$10 to \$15 an acre to \$35 and \$55 an acre, and are still rising, because they are profitable."

All indications point to a healthy and increasing growth of this city as a fertile field for investments and as a large manufacturing and commercial city.

ALEXANDER HELPER.

A VISIT OF INSPECTION.

Plants in the Security Cement and Lime Company Merger.

A number of prominent Baltimoreans, including financiers, capitalists, architects, building supply dealers and business men inspected this week the plant of the Maryland Portland Cement Co. at Security, Md., and the Berkley Limestone Co. at Martinsburg, W. Va. The trip was made under the auspices of J. S. Wilson, Jr., & Co., bankers, of Baltimore, who have in charge the financial arrangements covering the merger of the Maryland Portland Cement Co. and the Berkley Limestone Co. into the Security Cement & Lime Co., and the trip was planned primarily to familiarize Baltimore's leading business men with the character and scope of the two plants. About 100 were in the party.

The various details connected with the merger of these two companies were reported in the MANUFACTURERS' RECORD of October 14. These have all now been successfully worked out, and all plans connected with the consolidation of the two companies have been consummated with the exception of the election of officers and directors. It is probable that these will be elected during the latter part of this week.

Appalachian Engineers.

The Appalachian Engineering Association will convene in Washington, D. C., at the New Willard Hotel at 9 A. M. Friday, November 5. The program includes addresses by Major Wm. N. Page of Washington, D. C.; Richard H. Edmonds, editor of the MANUFACTURERS' RECORD, Baltimore, Md.; Dr. Thomas L. Watson, State Geologist of Virginia, and papers by Prof. R. L. Morris of West Virginia University; Major W. J. Douglas, engineer of bridges for the District of Columbia; D. C. Weller, city engineer of Waynesboro, Pa.; E. V. N. Heermance, president of the Virginia Concrete & Engineering Co., and H. Fernstrom, chief engineer of the Virginian Railway.

On Saturday, November 6, by invitation of Superintendent Keppel of the Union Terminal Co., the association will visit the mammoth interlocking plant at the new Union Station, after which Major Douglas, engineer of bridges for the District, will conduct the party to the gigantic reinforced concrete bridge on Connecticut avenue.

Headquarters will be at the New Willard Hotel, and a very large attendance is promised. All engineers, geologists and persons interested in industrial developments are cordially invited to attend these sessions.

Interesting Features of the Present Cotton Market.

By ATWOOD VIOLETT.

[Written for the Manufacturers' Record.]

I have had for some time rather decided views upon one feature of the cotton market, and I now beg to give expression to them.

In former years, when differences were even wider than now between the New York and Liverpool markets, it was a safe proposition, with lower grades permitted to be tendered on contract in New York than in Liverpool, to sell here and buy simultaneously in the foreign market, and transactions of this kind brought large profits to those making a specialty of this business, and a number of firms in each market did this each season, to an extreme extent in the aggregate.

The present differences of, say, 40 points between May-June Liverpool and May at New York, and even with wider differences lately ruling on these options, have induced transactions of this kind of such volume as perhaps never before.

One thing, however, has been overlooked, and that is the character of the long interest now and what it has been in former years. Contracts bought at four to five cents lower than present prices are still being held in the New York and New Orleans market, and in great quantity. This is exclusive of those bought at the same time and at a later period, profits on which have already been taken to a very considerable extent, and thus realizing their profits, exclusive of those profits unrealized because of the contracts still unliquidated. Their position, therefore, has been made to a large extent impregnable, in view of the demand for American cotton throughout the world, and that demand in the Southern States is now and has been for some time the sustaining power of the contract market. In other words, the advance in the market has been brought about not so much through speculative buying of futures, but is due greatly to a general demand all over the world for cotton of American growth.

The danger, therefore, to those short in this market is that their sales have been made to a concentrated and unusually strong long interest here, who have probably made, and may further make, hedge sales in Liverpool, and thereby dominate the course of both markets to such an extent as to make it a serious matter for those who have the opposite side of the straddles. As a matter of fact, it gives the leading operators on the long side here an opportunity to multiply their holdings, with little or no additional risk.

This long interest will probably bring the corresponding options in the two markets nearer together, not because of a desire to do this, but merely because those who sell in this market will find it a hard proposition to get the cotton to liquidate the greater part of their short interest, whereas those who sell in the Liverpool market from this side will be demanding delivery on their long contracts in the New York and New Orleans market, and thus be able to deliver the cotton against their short contracts in the Liverpool market, and in the meantime the position of the foreigner would be made worse should the differences narrow instead of widen.

The short interest, whether it is here or in Liverpool, or New Orleans, is reckoning as of old upon liquidation by those long of contracts as their contracts mature, because of notices tendered by the seller, but it rather looks as though the buyer of October and December contracts in this market will demand delivery of the cotton, and these conditions may prevail right straight through the season, particularly if to some extent they have hedged

their purchases by sales in Liverpool. These hedging sales there against purchases here would not be against the total long interest of the principal and strongest bulls on this side, but only to such extent to protect the bulls against such purchases as they lately felt they had to make in order to sustain the market or to prevent raids such as have recently been attempted several times, but unsuccessfully, except temporarily.

I merely present these possibilities, and to a great extent probabilities, for the consideration of those who are fearing, and to some extent have been preaching, a wide-open break in contracts in all markets, but particularly in the local market.

There are conditions that have devel-

oped in recent months that have never been presented before, and mainly because there has never been before the same strength of holders of long contracts as now exists, nor has the cotton trade ever known the same conditions as to the demand and supply of American cotton, the requirements of the former, according to spindle capacity, being the largest on record, and the latter relatively the smallest on record since the American Civil War.

Another very bullish feature in the market will soon develop in the holding power of the South, where producers, having sold enough to satisfy immediate needs, desire to participate in the higher prices that are being predicted, and justifiably so, and thus a very gradual marketing of the crop may follow after the current month, and what a small movement out of a very small crop will mean it would be well worth to bear in mind.

New York, October 23.

Need there be surprise that about one-third of the \$750,000 stock offered was subscribed for on the first of the five days that subscription books were kept open, or that improvements, additions and new construction are going on at a marvelous pace all over New England?

The enterprise to which particular reference is made in the foregoing is the Maverick Mills, now under construction in East Boston, the first undertaking of the kind to be located in Boston, as it may somewhat singularly appear. A number of substantial New England capitalists are behind the enterprise, and it is to be managed by Robert Burgess, of the successful Burgess Mills, Pawtucket, R. I. The company has an authorized capitalization of \$2,000,000. The mill will be built in units of 50,000 spindles, and will weave 50s and above, gradually working into the finer weaves. It is expected that the mill will be ready to begin weaving inside of three or four months.

Down at New Bedford a company of which Wm. Whitman of Boston is president is constructing the Nashawena Cotton Mills, said to be the largest manufacturing plant in the world to be built at one time. In the main building, 800 feet long, 135 feet wide and four stories high, are to be 150,000 spindles, and in the weave shed, 800x280 feet, with basement, there will be 4000 looms on cotton and 1000 more on cotton and silk, with plain dobby and Jacquard weaving. The manufacturing building alone covers over 17 acres of floor space. The investment in this property is all of \$2,500,000. It will give employment to 4000 hands.

Besides this enormous plant there are five other new mills under construction at New Bedford, costing from \$700,000 to \$1,200,000, and eight or ten of the older concerns are erecting additional mills and greatly enlarging the capacity of their present plants.

Over at Fall River, where there are nearly 100 factories, having more than 3,000,000 spindles and almost 100,000 looms, it having been for many years the leading cotton-manufacturing city in the United States, several million dollars are also being invested in new mills and in additions to the capacity of the older ones.

And so also throughout all New England, from Bridgeport, Conn., to Lewiston, Maine, the expansion of the cotton industry is occurring in a tremendous way. The great works of the Amoskeag Company at Manchester are receiving a \$2,000,000 addition, as another illustration, and besides the expansion of present lines of manufacture there are throughout the section introductions of specialties never before undertaken in the United States. Since the first of the year new mills and additions to the number of something short of 200 have been reported, these including some very extensive additions to the worsted mills of the Woods and Ayers at Lawrence, already the largest of their kind in the world.

This brief outline of conditions here may

New England Determined to Maintain Its Thrift.

[Special Correspondence Manufacturers' Record.]

Boston, Mass., October 18.

With \$50,000,000 to \$75,000,000 being expended on new mills and additions to old ones in New England, the South is put on notice that in its race to close the gap between the sections there is a very lusty Marathon runner at this end of the line. Any notion that there is a stationary, stagnant or receding position to be overhauled and distanced might as well be discarded now and for all time, for it will take the most wide-awake hustling energies of the South to keep within the present hailing distance of industrial New England. The marvelous progress of the South is a matter of just pride to all Southern workers, a credit to the community and an achievement the whole world now gives ready recognition to, but all thought and talk about the South causing the cotton and machinery businesses of New England to languish and decay are founded on ignorance of conditions, North and South. As a matter of fact, never in its history was New England so thoroughly entrenched in industrial supremacy along specific lines, and never were assurances of a long continuance of this lead so apparent or convincing.

When I was up here five years ago, preparing for the MANUFACTURERS' RECORD the series of articles afterward reprinted in pamphlet form under the title of "Yankee Thrift," there had been so much talk about New England's possible decadence, not only on the outside, but even among some of the New England people themselves, that I had come mentally prepared to find facts in proof of that contention. While I found people of position here at that time who thought they foresaw a day when New England would be practically abandoned to the summer tourist business, with its lands drifting into the ownership of shooting lodge proprietors, investigations I then made completely overthrew any possible foundation for such a belief on my part, and I recorded the conviction that there is here such ingrained managerial and mechanical ability, such grit, thrift and adaptability to every changing condition that New England's supremacy in the manufacture of fine goods—textiles, machinery, tools and a multitudinous variety of articles—will continue to the end of all foreseeable time, and that hustle as other sections may, they could only hope to follow where New England blazed the way. In other words, let the South advance as rapidly and as far as she might, New England could be relied on to also go ahead, maintaining a lead which had been acquired by

dint of the inherent and inalienable genius of her people for achievement.

From earliest colonial times these people had been forced to be thrifty—to make the most of conditions that were frequently of the most unfavorable sort, and out of such training had come such a sturdy self-reliance and ability to carve commercial success out of any situation that this has been made not only the busiest industrial beehive to be found anywhere, but a financial storehouse that supplies every local demand, while at the same time furnishing funds for development to all parts of the Union besides.

In reiterating and giving new emphasis to the convictions then acquired, there is no intention on my part to offer discouragement to the people of the South who are busily and with enthusiasm engaged in the work of development in that section. The purpose is rather to offer stimulus and inspiration to greater and unceasing effort on the part of the South, for if New England can accomplish so much without fuel and raw materials, lacking even in agricultural resources sufficient for the support of her population and having a climate so harsh as to lay a heavy tax on resources for fuel, clothing, etc., as well as putting water-powers out of commission during portions of the year, what may not the South achieve with every raw material, fuel in enormous quantities, all-the-year water-powers, practically all-the-year agriculture, and a climate mild and kind?

In advertising recently for subscriptions to the stock of a new cotton-mill enterprise the Boston underwriters made use of the following inside facts as to returns made to original investors by representative Eastern cotton mills, the figures having been secured from official data supplied to congressional committee and from quotations given by bankers:

Name of company.	Capital.	Surplus.	Average yearly dividends for eight years.		Approximate present market value.
			1907.	1875-84.	
Amoskeag.....	\$5,750,000	\$4,139,983	16%	15.75%	\$350
Androscoegin.....	1,000,000	1,040,269	10	9.37	205
Bates.....	1,200,000	1,149,329	33	16.25	262
Border City.....	1,000,000	351,271	23.50	14.87	155
Richard Borden.....	1,000,000	506,186	20 (A)	12.62	192½
King Philip.....	1,500,000	871,084	6	21.25	190
Dartmouth.....	1,200,000	876,253	66 (C)	19.75	230
Dwight.....	1,200,000	1,384,338	39	12.50	199
Great Falls.....	1,500,000	987,410	12	14.62	210
Laurel Lake.....	600,000	235,000	14 (B)	23.75	190
Massachusetts Cotton.....	1,800,000	1,774,320	5	6.25	140½
Lawrence.....	1,250,000	889,710	8	15.25	171
Pacific.....	3,000,000	5,875,281	22	15.50	339
Pepperell.....	2,556,000	1,835,252	12	26.33½	334
Sagamore.....	900,000	308,764	20	10.63	185
Troy.....	300,000	369,152	35.50	23.62	180
Union.....	1,200,000	472,545	67 (E)	22.87	235
Whitman.....	2,000,000	1,945,597	8 (D)	7.25	175

(A) Also declared 25 per cent. stock dividend.

(B) Also declared 100 per cent. stock dividend 1909.

(C) Also declared 100 per cent. stock dividend 1909.

(D) Now paying 10 per cent. Also declared 33½ per cent. stock dividend 1909.

(E) Also 100 per cent. bond dividend 1909.

NOTE.—In many cases the amounts earned were greatly in excess of the dividends, the excess over dividends being added to the surplus.

serve to bring to the South some realization of what is necessary for it to do before it anywhere near catches up with New England in an industrial way. While there is work and glory enough for all in the present and potential demands for American-made goods in this country and throughout the world, and neither New England nor the South needs to look on the other as a rival to be vanquished—a vain hope, even if were it to be indulged in—it will serve the South a more beneficial and useful turn to be brought to a realization of just how active and progressive New England really is, rather than to humor it in the belief that its own progress is greater than that of any other section of the land. New England does not underrate the growing importance of the South, and it is of vast significance that her financial concerns are looking with increasing favor on the opportunities for investment which the South presents. There is apparent a growing intimacy of relations between Southern undertakings and New England disposition to lend financial aid, and out of this condition there should accrue very important benefits to all the South and to New England as well. But there must be no interpretation of this tendency as an indication that local enterprises have lost any attractiveness to New England investors. On the contrary, it appears that never has New England had so full a faith in its powers and in its future as at the present time.

It has long been observed by all men who have given the matter the slightest thought that New England has a singular and even eccentric aversion to "booming." Fully appreciative of her merits, in nowise deficient in recognizing her powers and very far removed from anything like humility when contemplating her virtues, New England has yet presented a studied and consistent indifference and lack of enthusiasm as to her achievements—in a material way, at least—that has given the world at large a very erroneous impression about the extent and importance of the work she is doing and has done. In any other section of the land the fact of \$50,000,000 to \$75,000,000 being put into new mills would have been heralded forth in such thunder tones as would have made all the world take notice. Here it is taken very much as a matter of course, and is largely regarded by press and public alike as all in the day's work. Nowhere are there such historians as the New Englanders, and nowhere such reports and statistical information about every form of activity as can be found in the public documents of the New England States; but it has apparently been thought quite sufficient to present the facts in this way and "let it go at that." No scarehead lines, no editorial analysis and elucidation, but simply a dignified statement of the case has been the New England way.

Now, however, there is a change at hand. It is felt by many who are in charge of business affairs that the supremacy of New England along certain lines would be more firmly fixed and progress more certainly assured were the people at large, including New Englanders themselves, more fully impressed with the magnitude of the work New England does. Therefore, there is the awakening of a spirit throughout New England to give greater recognition to the industrial development under way, that the people at home as well as the people abroad may the more fully understand the magnitude of the achievements of that section in material advancement. A new era has really dawned, and the progress now under way, as typified by these vast investments in cotton and woolen mills, is indicative of the awakened life and energy (though to the outsider

New England has ever been a center of life and energy) which promises to give the South a livelier race for textile and other industrial progress than it has had in the past. New England's example ought to be a tremendous stimulation to the South. What it is doing shows how the broadminded capitalists of that section recognize that the possibilities in cotton manufacturing are almost without limit, and they are backing their faith with these millions. ALBERT PHENIS.

DEEP BORING FOR OIL.

Experimental Undertakings in the Eastern Kentucky Field.

[Special Cor. Manufacturers' Record.]
Barboursville, Ky., October 25.

Some interesting searches for a deep oil-bearing sand are now being conducted in Kentucky. It is believed that sands identical to those in the West Virginia and Pennsylvania fields may be found in the Bluegrass State by going to the proper depth, and with this theory in mind a number of deep wells have been started in several sections of the State.

While deep drilling is no new experiment in this field, the failure of the shallow sands to produce oil in lasting quantities has given impetus to the deep test experiments. Shallow oil has been developed with profit for a number of years, the productiveness of the sand for a few years and the cheapness of drilling holding out inducements which have confined operations to this class of development work since the establishment of the field. Shallow sand territory, which is looked upon as sure, is scarce, and in some instances the upper oil-bearing formations have been pumped dry, and thus interest in deeper drilling has been increased.

In Eastern Kentucky new operators have leased extensively in a number of counties bordering the Big Sandy River Valley, and will drill a number of deep test wells during the fall and winter. Late developments on the West Virginia side in the deep sands lead to the belief that the same formations may be found on the Kentucky side, several of the West Virginia producers lately drilled being not far removed from the scene of the new work in this State.

In Clay county, south of the Big Sandy Valley, the well-known firm of Guffey & Galey of Pennsylvania has leased extensively and has started the first of a number of deep test wells. The initial venture is well under way, and will be taken below the depth at which previous tests in that country have ended. A string of these test wells will be drilled.

Practically all of Kentucky's crude oil output now comes from sands 600 feet and less in depth. Most of the shallow sand fields have been developed with profit, but if a deeper sand may be developed it will greatly widen the scope of operations and attract new operators, who place their faith in deep oil.

While deep drilling operations are being started in some sections of the State, and the shallow sand pools are also coming in for the usual attention, the fall drilling campaign is not being conducted on the usual scale because of the uncertain market. Oil prices give little incentive for experimental drilling, being the lowest since a market was established for the product.

In the established districts drilling is confined pretty closely to proven spots. Few extensions to the older developments have been made, most of the work of a purely test nature being conducted in regions where the pipe lines do not extend, and where the present crude oil prices do not so materially affect drilling.

Kentucky's oil production is now coming from the districts of Wayne, Wolfe, Bath

and Rowan, the runs averaging close to 15,000 barrels weekly. Prevailing crude oil prices are 72 and 50 cents per barrel on the respective grade. The output of the inferior grade is very limited. One year ago the better grade commanded \$1 per barrel.

Natural gas developments are increasing in scope, and a number of wells are being drilled for this resource of nature in different sections of the State. Kentucky's output of natural gas is being used commercially in a number of places, and the field for future development is wide. Fields widely scattered have been developed, and it is evident that a vast natural gas belt underlies a great portion of the eastern section of the State.

W. S. HUDSON.

MARLIN'S GREAT WELL.

A Community Flourishing About a Flow of Mineral Water.

[Special Cor. Manufacturers' Record.]
Marlin, Tex., October 22.

Situated about midway between Houston and Dallas, at an altitude of 400 feet, the little city of Marlin occupies a unique position among Texas towns. In the midst of one of the finest, most fertile agricultural sections of Texas, where diversified farming may be and indeed is being carried on successfully, and where everything raised on the farm finds a ready market, it will be readily understood that this must be a prosperous place.

But while the above is all true, this is not the chief attraction of Marlin. The visitor sees many handsome and substantial business houses, as well as elegant dwellings; notes the bustling population and other evidences of prosperity, and wonders whence comes all this thrift, for there are no great manufacturing industries here. Among other really beautiful structures here are a number of modern hotels, and a much larger number of boarding-houses, with a combined capacity of nearly as many more. He wonders again why so many houses of this class. The reason is that right here is located one of the most remarkable mineral wells on the American continent. Its water contains every chemical property found in the Carlsbad water, but is nearly 50 per cent. stronger. This well is 3350 feet deep, and flows with a pressure sufficient to throw water over the highest building in the city. Furthermore, its temperature is 147 degrees Fahrenheit. It has been flowing for 16 years, and as the knowledge of its virtues increases its uses also increase until the capacity of hotels and boarding-houses are constantly taxed to their utmost to accommodate those seeking the benefits of its waters.

Through the efforts of the Commercial Club here another well is now being sunk in the hope of securing parties to take up the proposition to build one or more strictly first-class hotels, with accommodations for 500 to 1000 guests, and thus make this a resort for winter tourists, upon the plans of Florida winter resorts. For this purpose the conditions appear to be ideal, and if once started there is no limit to the possibilities of the business. With the impetus already acquired by Marlin through 16 years' advertising, it should be an easy matter to make the venture a profitable one from the beginning.

A very strong evidence of the desirability of this place for a winter and pleasure resort is found in the fact that many of the leading major league baseball teams use this place as their winter training grounds, among which are the New York Giants, who have trained here for several winters past.

The people of Marlin are progressive, and while there are not many millionaires here, yet there are quite a number of well-

rated business men who are ready to offer substantial encouragement to any legitimate business enterprise. Furthermore, Marlin has a wide-awake Commercial Club, of which Geo. H. Carter is president and F. S. Heffner is secretary, either of whom would take pleasure in giving interested parties detailed information about anything of interest to the investment seeker. Situated on two of the best railroads in Texas, the International & Great Northern and the Houston & Texas Central, Marlin can be easily reached from all the principle cities of the State, and even with its present hotel accommodations the habitual winter tourist would be well repaid for a trip here.

WM. C. CLOYD.

TO DEVELOP WATER-POWER.

Electric Plant and Trolley Line Projected in West Virginia.

[Special Cor. Manufacturers' Record.]
Union, W. Va., October 25.

B. F. Mann of Fort Springs, W. Va., has bought the necessary site and proposes to erect a concrete dam 43 feet in height across Second Creek, five miles from Ronceverte, W. Va., on the border line between Monroe and Greenbrier counties, and there construct an electric plant capable of producing 1000 or more horse-power. His plans are definitely made to commence work on this enterprise as early next spring as the weather will permit. He proposes to furnish electric lights to the towns of Ronceverte and Alderson and power for machinery.

A trolley line from Ronceverte southward through Monroe county via Union, the county-seat, to Rich Creek, Va., on the Virginian Railway, is also projected. The distance is 45 miles. If greater power be required it can be developed cheaply from Second Creek or Greenbrier River. This proposed railroad would have rail connection at Ronceverte over the Greenbrier division of the Chesapeake & Ohio Railway and the Western Maryland Railroad, with Cumberland, Md.; Pittsburg and Baltimore. It would give those cities direct rail connection with the great coal fields of the Norfolk & Western and Virginian railways. It would penetrate Monroe county, which, in addition to being one of the finest agricultural regions in either of the Virginias and having 300,000,000 feet of timber to put on the market, is rich in undeveloped iron ores. Volume IV of the West Virginia Geological Survey Reports, issued last month and prepared principally by Prof. I. C. White, State Geologist, devotes considerable space and furnishes important information touching the quality, extent and value of the iron ores of Monroe county. A consideration of these facts discloses some of the incentives for the building of this road.

For the present Mr. Mann will devote his attention exclusively to the construction of the electric plant. It is not known who his financial backers are, if he has any. No company has yet been organized.

A. S. JOHNSTON.

Coosa-Alabama Development.

Tracy W. Lay is visiting the leading cities on the Coosa and Alabama rivers for the purpose of enlisting their practical co-operation in a plan to secure a nine-foot barge channel from Rome, Ga., to the Gulf, and connected therewith the development of water-powers aggregating 300,000 horse-power. A large appropriation from Congress is sought, and, according to a dispatch from Gadsden, Mr. Lay's desire is to have the engineers' report accompanied by definite statements that the cities will offer sufficient commerce to justify the improvement of the rivers by the Federal Government.

FINANCING HAWLEY'S MOVES.**New York Reports About Chesapeake & Ohio and Other Roads.**

[Special Cor. Manufacturers' Record.]

New York, October 26.

Information comes to me from a reliable source that Edwin Hawley is negotiating with Speyer & Co. for a loan sufficient in amount to meet the present needs of the Hawley railroads in regard to improvements and additional equipment, as well as to finance purchases of railroads which have already been made and others which are now being negotiated or which are in contemplation. The total amount of the loan will probably reach \$50,000,000, and in certain contingencies may largely exceed that figure. It will be issued in connection with the formation of a holding company, something on the plan of the Pennsylvania Company, through which the various Hawley properties will be practically consolidated and ample provision made for the progressive improvement and extension of the system. An amount of money probably reaching \$20,000,000 is to be expended on improvements and additional equipment for the different Hawley railroads, but especially for the Chesapeake & Ohio Railway, which is to be the great trunk of the system, however it may become enlarged. The many advantages which Hampton Roads holds over any other Atlantic seaport as a distributing port for the commerce of the nation are clearly recognized by Hawley, and it is his purpose to develop them to the fullest extent. The broadening of the terminal facilities at Newport News, which is now under way, is an earnest of the improvements and betterments that will be made along the entire Chesapeake & Ohio trunk line from Newport News to Chicago and of the additions that are to be made to the equipment. The entire main line is to be double-tracked, much of it four-tracked, and some of it six-tracked, and the whole length is to be laid with 100-pound steel rails. Particular attention is to be given to the equipment, both rolling stock and floating stock, with the view to providing against all demand that may be made upon it by the rapidly-increasing traffic. The minor divisions and branches will be largely improved and sidings and passing tracks put in wherever needed. Necessary extensions will be constructed or purchased, and the older or more backward lines of the system will be reconstructed. Similar improvements and additions will be made to the other Hawley railroads, especially the Clover Leaf-Alton lines, and to the terminals in Louisville, Cincinnati, Toledo, Chicago, St. Louis and Kansas City.

At the office of Speyer & Co., where I sought to have this information confirmed or corrected, I was informed that no statement could be made at this time. "Then my information is incorrect; there is no truth in this story of a big loan to Hawley," I asked. "I do not say that," answered the gentleman I spoke to. "I merely reiterate that we have nothing to say about the matter at this time." And in no way could I elicit from him a confirmation, correction or denial of my information. But a person who does business with and for Speyer & Co., and whose statement may be depended upon in this matter, told me that it is a fact that a big loan is to be made to Edwin Hawley, and that the purposes of it are substantially as I have stated them.

Another report which has reached me from an equally reliable source is that persons associated with Edwin Hawley have had several meetings in the last month or so with persons interested in the Clinchfield Coal Co., and I am informed that the purpose of these meetings was to discuss

an offer made by Hawley's friends regarding the Carolina, Clinchfield & Ohio Railway. Whether this offer took on the nature of a bid to purchase the road or an effort to secure it under lease or operating contract, or whether the whole thing merely amounted to negotiations looking to a traffic agreement, my informant would not say. It will be recalled that in a previous letter I stated that one of the matters discussed at the meetings between President Stevens of the Chesapeake & Ohio and the big men of the Hawley party had to do with certain negotiations regarding the Carolina, Clinchfield & Ohio Railway, the exact nature of which I had not been able to learn. I asked Edwin Hawley about the matter yesterday, but the only statement he would make was that it is very likely that an agreement of some kind will be made between the Chesapeake & Ohio and the Carolina, Clinchfield & Ohio to go into effect as soon as the latter is completed. He added that if friends of his are negotiating for the purchase of the Clinchfield road they are acting as individuals, not as associates or representatives of his. "I don't know that the road is for sale," he said; "do you?"

While Edwin Hawley is much averse to talking about his own affairs, he is willing enough to speak about general matters. He declares that the business depression is a thing of the past, and that the country is on the eve of a period of great prosperity. This prosperity, Mr. Hawley believes, will be broader and deeper than any the country has yet experienced. It will be marked by great expansion of our industries, especially the transportation industry; by broader and freer commerce with other nations, particularly those of the Orient and of Latin America; by the opening of the Panama Canal and by the development of Alaska and of the waste places within the United States. The South, Mr. Hawley believes, will be particularly benefited by this era of prosperity unless her people deliberately turn their backs upon their opportunities. He expects that section to lead the country in wealth and influence, and, considering what the Southern people have accomplished in the past with almost insuperable obstacles in the way of their progress, he predicts that her day of pre-eminence will arrive sooner than may be expected. But he declares that she must awake to a realization of the great obstacles still to be overcome, the principal being lack of transportation facilities adequate to her needs and antagonism to capital invested in railroads.

The combination between Hawley and Yoakum in the purchase of the Missouri, Kansas & Texas Railway really marks the formation of an exceedingly strong party of men who rank high in the industrial and financial affairs of the nation. Back of Hawley are the Standard Oil interests, and back of Yoakum the able and experienced men associated with Judge Moore, while the Speyers, the great international bankers, are also parties to the combination. The object of such a strong combination is even more important than the joint control and operation of 3000 miles of railroad. A high authority, whose name I am not permitted to mention, states that it will be found to be the gathering of forces for a struggle between this party and the one that battles under the banner of the Pennsylvania Railroad. It is known that Hawley is a thorn in the side of the Pennsylvania, and that the latter's purchases of Atchison stock have had for their object an attempt to checkmate him in his deal with the Kansas City, Mexico & Orient. But the Atchison is a bitter rival of the Rock Island-Frisco, and has been so since the early days of railroad construction west of the Mississippi River,

when the engineering parties of either railroad warred on those of the other as bitterly as both were warred on by the Indians, and by purchasing the Atchison, or attempting to purchase it, the Pennsylvania braved the animosity of the Rock Island-Frisco, which thereupon decided to enter the lists in support of Hawley. The result is likely to be a war that will sweep from end to end of the country, affecting not alone the railroad business, but the entire industrial system of the nation. And whichever party or combination of parties is worsted in the contest, it is a safe prediction that the nation at large will be immensely the gainer from the struggle for supremacy.

W. J. MEANY.

BIRMINGHAM IRON MARKET.**Strong Tendency to Crystallize Base Price of \$15 for Pig for Prompt Delivery.**

[Special Cor. Manufacturers' Record.]

Birmingham, Ala., October 25.

About the same conditions existed in the iron market the past week as prevailed the week previous, with the exception that there was a strong tendency to crystallize the base price of \$15 per ton at the furnace for prompt delivery or for delivery through the first half of 1910. As far as the furnace companies are concerned—certainly a large majority of them—these figures correctly represent the status of the pig-iron market today. However, occasionally there is evidence of some slight concession on resale iron. Reliable figures show that a considerable tonnage of this merchant iron in the district is being gradually wedged in on orders of preferential customers. This being the case, it will take only a comparatively short time to eliminate this competitive iron. Several of the iron companies continue to hold open for first half business, while others prefer, and, indeed, insist on customers taking second quarter iron in conjunction with first quarter business. One large interest reports the sale of two 1000-ton lots for next year's delivery at the base price of \$15 per ton at the furnace. Other scattering sales were made, aggregating considerable tonnage, on same basis. Inquiries continue about the same as last reported. The heavy melters in the Middle West, from all indications, are doing considerably more business than for many months previous, and the same applies to the local foundries here. Charcoal iron is active, and while the price is exceedingly firm at \$21.50 per ton at the furnace, indications are strong that before the present week shall have closed an additional 50-cent ton advance will have been recorded.

The outlook for future contracts in cast-iron pipe is considered encouraging, and already municipal specifications are coming up for consideration from the Middle West and the Pacific coast. This is true of certain large improvement work, as well as for new lines. Manufacturers have sufficient orders in hand to keep them running full time, and prices remain firm. Following are quotations f. o. b. cars at the foundry: Four-inch, \$25; 6, 8 and 10-inch, \$23; 12 inches and over, 22 average, with \$1 a ton advance for gaspipe. Fittings are quoted at \$55 per ton at the foundry.

Dealers find no trouble in disposing of whatever tonnage of scrap iron they may be able to gather from time to time. There is, however, an appreciable dropping off in demand for the heavy steel scrap as compared with a few weeks previous. Heavy melters of this scrap seem to have covered their wants pretty well. There is, however, no falling off in the demand for first-class cast scrap, particularly No. 1 machinery. Dealers' asking prices are as follows:

Old iron axes, \$20.50 to \$21.

Old iron rails, \$16 to \$16.50.
Old steel axes, \$18 to \$18.50.
No. 1 railroad wrought, \$14 to \$14.50.
No. 2 railroad wrought, \$12 to \$12.50.
Dealers' mixed wrought, \$11 to \$11.50.
Old steel rails, \$12.50 to \$13.
No. 1 machinery, \$12.50 to \$13.
No. 1 steel, \$12.50 to \$13.
Old standard car wheels, \$14 to \$14.50.
Light castings, stove plates, \$10 to \$10.50.

Cast borings, \$6.50 to \$7.

The Chattanooga furnace of the Southern Iron & Steel Co. was blown in this morning on foundry iron. This is the second stack belonging to this company which has gone in this month.

Work on the line of railroad from Cullman, Ala., to Bremen, a distance of some 25 miles, is being pushed by the Cullman Coal & Coke Co. A cargo of negro laborers has been unloaded there to assist in the carrying on of this work. Substantial work is being done, which accentuates the permanency of the undertaking. It will be remembered this proposed undertaking was mentioned some time ago in the MANUFACTURERS' RECORD. Heavy steel rail will be laid, and the trestles will be of concrete and steel. It is understood that in addition to the hauling of freight, passenger service will be installed.

OVEN SITES SELECTED.**Work on the Mitchell Coking Plant in Elkhorn Field Begins.**

[Special Cor. Manufacturers' Record.]

Heller, Ky., October 25.

T. J. Mitchell, president of the Mitchell Coke Co., is in Heller, accompanied by an engineer of large experience in coke-oven construction in the Connellsville district, for the purpose of locating the site for the first battery of coke ovens of the Mitchell type to be erected in the Marrowbone field. They expressed themselves as much pleased with the situation here, and stated that the conditions in the Elkhorn coking coal field are entirely favorable for the construction of coke ovens. Both veins of the coking coal crop out at a very convenient height for operating, and all materials necessary for construction purposes are at hand.

Work on construction will be commenced at once and advanced as rapidly as possible. The first location will be at the head of Marrowbone Creek, where the coal opens out on both sides for three or four miles. The mines in this district are already well developed, and will be able to furnish an ample supply of coal as soon as the ovens are ready to be fired.

This is the beginning of a coke-making development in Eastern Kentucky that, as stated in the MANUFACTURERS' RECORD last week, is regarded by experts as destined to make this one of the greatest coke-producing sections in the world.

ALBERT PHENIX.

Colonization Notes.

A company has been formed to establish canneries and to cultivate lands south of Mobile, Ala.

Mr. H. A. Black of Houston, general manager of the Houston Oil Co., says that his company is making many sales of its lands in tracks of 40 acres and less to bona fide settlers.

It is reported that M. W. Ulmer, a large turpentine operator of Hillsborough county, Florida, will sell 20,000 acres of land near Largo to a Chicago man who contemplates settling it with colonists.

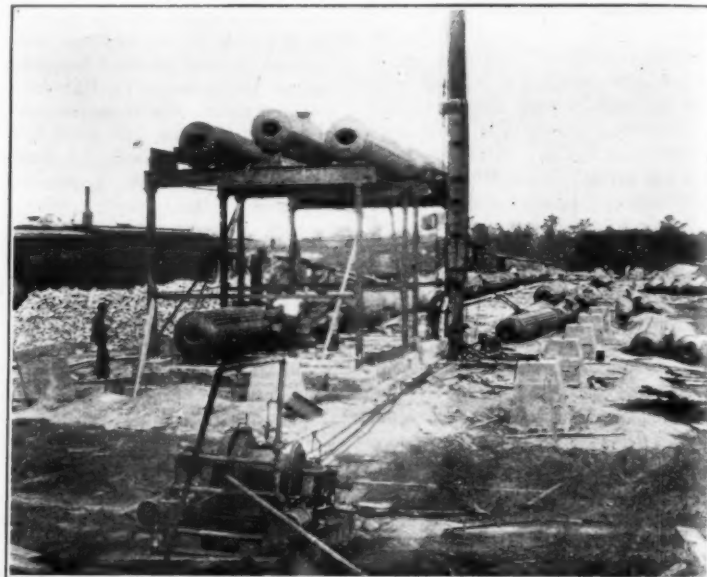
After a suspension of several years the furnace of the Jefferson Iron Co. of Jefferson, Tex., was put into active operation last week.

SOUTHERN IRON & STEEL CO.'S PLANT AT GADSDEN.

THE COMBINED FURNACE AND STEEL ROD AND WIRE PLANT NOW UNDER CONSTRUCTION BY THE SOUTHERN IRON & STEEL CO. AT GADSDEN, ALA., WILL EMPLOY ABOUT 3500 HANDS. WITH THE NECESSARY SWITCHING TRACKS THE PLANT WILL COVER ABOUT 150 ACRES OF LAND. WORK UPON ITS CONSTRUCTION IS BEING RUSHED NIGHT AND DAY, AND THE INDICATIONS ARE THAT IT WILL BE COMPLETED IN A SHORTER TIME THAN ANY SIMILAR PLANT EVER BUILT IN THIS COUNTRY. THE ACCOMPANYING ILLUSTRATIONS, TAKEN ON OCTOBER 15, SHOW THE CONSTRUCTION WORK AS IT STOOD ON THAT DAY.



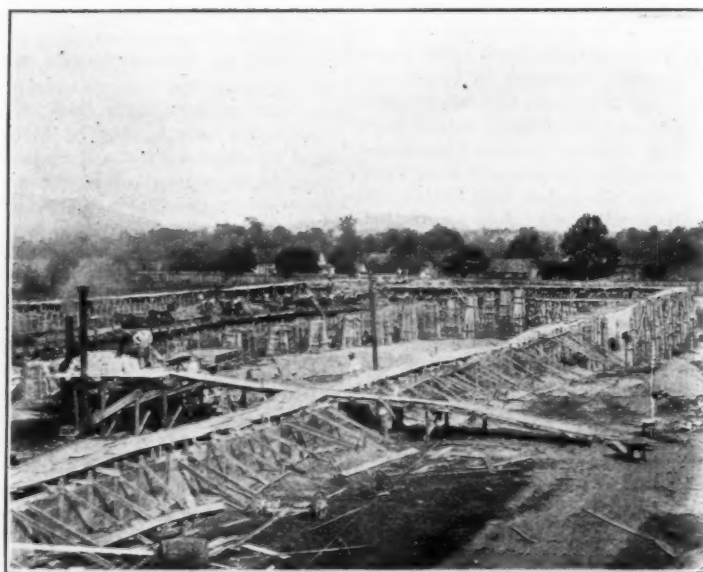
ROD MILL FOUNDATIONS.



BOILER PLANT.



EAST END, WIRE MILL.



"DRAWING-ROOM."

Resuming at Cordova.

[Special Cor. Manufacturers' Record.]

Cordova, Ala., October 22.

It now looks as if we would soon be able to resume operating our mill again, as business generally is improving. The miners are getting down to four and five days per week, and the local building of stores and residences is beginning to start again. It has been completely stopped for two years. We have some inquiries for rough and finished lumber. Of course, the selling of cotton and farm products will stimulate trade, and now, if building resumes, we have a chance at some good trade.

An investigation of mussels in Southern rivers is being made by the United States Government. Mussel shells are the basis of the pearl-button industry, employing 30,000 people in this country.

Officials of the Cotton Belt Railroad after a trip of inspection are enthusiastic over the prospects for rice culture in Eastern Arkansas.



DETAILS OF CONSTRUCTION.

To Represent Engine and Boiler Makers.

The Salem Iron Works of Winston-Salem, N. C., wants to represent manufacturers of first-class boilers and engines. The company has agencies throughout the South for the sale of the machinery it manufactures, and states it is in a position to secure a large volume of engine and boiler business, particularly small sizes used for cotton gins, sawmills, etc.

Messrs. E. R. Perry, secretary of the Mid-Continent Oil and Gas Producing Association, and Mr. L. L. Hutchison, assistant director of the Oklahoma Geological Survey, have published a valuable pamphlet on the history, geology and statistics of the Oklahoma oil and gas fields.

The Board of Trade of Tampa, Fla., has begun the publication monthly of *Tampa Truisms*, a lively presentation of the opportunities of Tampa and its surrounding country. Mr. F. C. Bowyer is president and Mr. William B. Powell is secretary of the Board of Trade.

ALACRITY OF SOUTHERN COMMERCIAL BODIES FOR NEW INDUSTRIES

WHAT IS YOUR TOWN DOING?

The MANUFACTURERS' RECORD will be glad to receive from responsible correspondents in every town in the South brief items of news about business conditions and the opportunities for industrial enterprises. This information is desired for publication without cost of any kind to the sender, and regardless of whether the writer of the letter is a subscriber or not. The MANUFACTURERS' RECORD accepts no paid town write-ups. It seeks information of this kind from commercial and industrial organizations and from municipal authorities in every town and city of the South.

HUGO'S LIBERAL OFFERS.

Business Men's Club.

Hugo, Okla., October 21.

Editor Manufacturers' Record:

Six years ago the spot where Hugo now stands was a broad cotton field; today it contains 6500 population, and is growing amazingly. It has added to its population this year fully 1500 souls, and the trains continue to bring them daily.

Ten new brick storehouses are in process of erection; a new water-works system is being installed costing \$165,000, and a sewerage system costing \$75,000; a City Hall is being built at a cost of \$20,000; three new schoolhouses are nearing completion that cost \$60,000; street paving has been done this year, for which was expended over \$20,000.

The St. Louis & San Francisco Railroad Co. is erecting a passenger station that will cost \$65,000. It has also set aside the sum of \$35,000 for addition to its shop system here, while it is semi-officially stated that Hugo will be a division point for its passenger and freight traffic.

The city has three banks, two of them being national, with a combined capital of \$300,000. It has an electric-light plant, an ice factory, two large planing mills, a spoke and handle factory, grist mill, two wholesale groceries, 10 dry goods establishments, a millinery store and scores of miscellaneous businesses.

It wants factories, and, besides giving free water and exemption from taxes for a period of five years, will pay a handsome bonus to propositions with merit back of them. In addition there is no better place in the Southwest for a first-class hotel, as our accommodations are wholly insufficient. A good hotel man with a small amount of cash can drive a bargain with our citizens, who are anxious to invest their money in this enterprise.

Two wholesale grocery stores doing a highly gratifying business proves beyond doubt that other lines can succeed here. Our people, therefore, will welcome a wholesale dry goods business, a wholesale hardware establishment, a paint and paper store or any other enterprise that with brains and money back of it is sure to succeed.

We want truck gardeners, farmers for our undeveloped lands, dairies, an elevator. With the vast territory around us we can guarantee success to any business that seeks a home with us.

W. D. LESTER,

Secretary.

CLOSE TO RAW MATERIALS.

Board of Trade and Cotton Exchange.
Meridian, Miss., October 22.

Editor Manufacturers' Record:

The 1907 panic has been forgotten by our people. Our sixty-odd industries are running full time, and old ones are being enlarged and new ones erected.

The Wymond Stave Co., manufacturing staves and heading, which has been in operation only about one year, has recently increased its real estate holdings to about 200 lots, and is erecting an additional plant to manufacture barrels complete, 600 per day.

The Priscilla Mills, manufacturing hosiery, in operation only a few months, have

just doubled their capacity and contemplate still further enlargement.

The Queen City Wagon Factory has just secured a site, and will at once begin the erection of a plant to manufacture wagons, making three wagon factories for Meridian.

The Carter Lumber Co. has just secured a site and is now erecting a planing mill, drykilns, etc., capital \$25,000, and will employ 50 or more hands.

Our city government has just let contracts for more than \$250,000 street paving, and the cost of necessary preliminary work by the city will increase the total expenditures to fully \$300,000.

The Meridian Light & Railway Co. will make extensions and double-track some of its lines in the near future. Many new residences and business houses are in course of construction now, and others, including several large mercantile and office buildings, projected.

We need additional manufacturing industries to consume the raw materials lying at our very doors, woods of various kinds, hard and soft, cotton, and clays in unlimited quantities, suitable for the manufacture of high-grade bricks and all kinds of pottery. There are few places where industries can be operated so economically as here. Quite a number of our industries obtain their fuel, in the shape of sawdust, shavings, etc., from the numerous wood-working establishments at nominal cost, and our light and railway company furnishes electric power cheaper than it is obtainable at any point in the South not enjoying water-power. With all these natural advantages our people offer attractive inducements for good, new industries, and those manufacturing a finished article are exempt from taxation for a period of years.

M. C. MOORE,

Secretary.

FOR CIVIC IMPROVEMENT.

Commercial Club.

Stamford, Tex., October 19.

Editor Manufacturers' Record:

Less than two years ago a campaign was started in Stamford, a new town in Central West Texas, for good sidewalks, street crossings and streets. There was no money available for the public improvements; hence it was necessary to issue bonds. An election was held and a bond issue for \$15,000 was voted. With this something like 100 permanent street crossings were constructed, six blocks of streets were paved with vitrified brick and the work of building sidewalks begun.

The City Council passed an ordinance requiring the sidewalks to be of uniform width, and to be built of an established grade, of concrete mixed by the Government formula. This ordinance also provided that the property-owners be given 60 days' notice, and if the walks were not started within this time that the city could build the walks and fix the cost of the same against the property as a lien if it were not a homestead. In that event it was fixed against any property that might be exempt by law. More than 15 miles of sidewalks have been laid, and the city has not as yet resorted to legal proceedings.

The plan adopted by the city in paving the streets was to pay one-third of the

cost for the street and alley intersections, and the abutting property-owners to pay two-thirds. It was not many months until the \$15,000 realized from the sale of the bonds was exhausted and another bond issue was demanded. With the other bonded indebtedness of the city, it was impossible to fix the second bond issue over \$20,000 and stay within the bonded limit. This was submitted and carried by a unanimous vote, and the work of paving the streets still progresses. When this bond issue is exhausted there will be more than 14 blocks paved with vitrified brick and more than 200 permanent street crossings.

The result is that Stamford is one of the few towns of its size in the State that has paved streets.

The two bond issues have and will cause the expenditure of nearly \$200,000 in street improvements and sidewalk building, and it is regarded by the citizens of Stamford as the best investment the town has ever made.

The amount of advertising that has accrued by reason of these improvements has been well worth the money. In addition to that, the convenience of her citizens has been subserved and the public has been greatly benefited.

Stamford is nine years of age, and now has a population of something like 7000, and it is doubtful if there is a town in the country that has made more rapid strides along these lines than has the town of Stamford.

HOMER D. WADE,

Secretary.

KNOWS WHAT IT WANTS.

Commercial Club.

Hereford, Tex., October 19.

Editor Manufacturers' Record:

Hereford wants a flour mill, with an attachment for grinding milo maize and kafir corn for pancake and feed purposes; a kraut and pickle factory, a broom factory, an alfalfa mill and a live produce commission merchant. Sensible men with capital who mean business will have a ready hearing from the Commercial Club and the progressive people of Hereford. We have no time for "dreamers" or "promoters." We want straightforward, up-to-date business men.

Our flouring mill committee took the street last week and raised \$1500 in stock for a mill in half an hour's work—just a beginning of what they can do. We have propositions galore for a mill, but we want first a man behind the proposition who can finance his mill after it is started without being bolstered up every few months; we want at least a 100-barrel mill, and no old machinery will be considered. In an average year we have between 200,000 and 300,000 bushels of wheat tributary to this city, and we consider it today the best location for a bona fide mill in the Southwest. Our citizens are willing to help; we are looking for the right man.

This section is the natural home of maize, kafir corn and broom corn, while our gardens rank with those of any climate. Here opportunity is lying in wait for the "live wire."

Hereford is the county-seat of Deaf Smith county; is 10 years old, incorporated; on the main line of the Santa Fe from Kansas City to California; has 60 miles of a north and south line graded, the charter being owned by the citizens; a fine electric-light plant, sewerage system completed and water-works under construction, macadamized streets, 10 miles cement sidewalks and a population of 4500 lustlers; a \$25,000 high school under construction and a \$125,000 courthouse voted; an excellent college with 150 stu-

dents; no saloons, no negroes, no disreputable joints. The water supply is shallow, pure and inexhaustible; the climate is delightful—cool summer nights and no severe cold weather. The city is growing at a phenomenal pace, the residence section being the finest in the Panhandle and the business district being remodeled in brick and cement blocks. The county contains 1500 square miles, and raises a money crop of wheat, corn, etc.; a fruit and garden country beyond comparison. The county is rapidly settling up with thrifty Northern farmers.

The doors are wide open here for the hustling kind of business men. Correspondence is solicited.

SETH B. HOLMAN,

Secretary.

AS LYNCHBURG WORKS.

Chamber of Commerce.

Lynchburg, Va., October 23.

Editor Manufacturers' Record:

The Lynchburg Chamber of Commerce has embarked actively in its advertising work.

Most of our efforts up to the present time have been devoted to the question of good roads and to the upbuilding of the population of the four counties contiguous to Lynchburg.

Through the efforts of the Chamber the Virginia-North Carolina Good Roads Association has been formed, and this includes in its membership the counties of Annerst, Bedford, Campbell and Pittsylvania, in Virginia, and the counties of Rockingham, Guilford, Davidson and Caswell, in North Carolina. It is the purpose of the Virginia-North Carolina Good Roads Association to improve the roadway between Lynchburg, Va., and Greensboro, N. C.

It is understood that the supervisors of several of the interested counties will soon recommend appropriations for the purpose of road building in their respective counties, and a part of the money will be used to improve the Lynchburg-Greensboro road.

On October 22 a meeting of the immigration committee of the Chamber and representatives from the railroads and counties was held in the office of the Chamber, and it was decided that the Chamber of Commerce, with the co-operation of the four counties adjoining, would publish a booklet, mainly in the interest of the counties, the idea being to build up the rural district from which the city proper will materially benefit. This booklet will be published immediately, and will be widely distributed through the railroads and by advertising in the agricultural papers in the Middle and Northwest and other places.

Lynchburg for years has been noted as a jobbing and manufacturing center, and in the latter instance has been conspicuous in the lines of shoes, cast-iron pipe, plow castings, etc.

Owing to its strategical location with reference to Southern markets, and the fact that it enjoys unusual shipping facilities and low freight rates, Lynchburg is an ideal place for more industries of this character, and also for manufacturing, jobbing and distributing houses of every kind who wish to reach Southern markets. Lynchburg needs particularly a millinery jobbing house. The jobbing business that comes to Lynchburg will prove a big asset at the very outset to any millinery house that may locate here, and to the right parties who are aggressive and know their business we will be willing to furnish bank

accommodations and any necessary capital to help them extend their business.

We also need a chipboard mill, and will undertake to raise a fair percentage of the capital for any manufacturers of chipboard who will locate in Lynchburg.

Lynchburg will not offer any bonuses or free sites for the purpose of inducing industries to locate in this city, but to any legitimate line of business whose owners desire to extend it and who will satisfy the Chamber of Commerce as to their previous successful career we will undertake to raise capital to any reasonable amount if they will locate in Lynchburg.

This fact, together with the assurance that Lynchburg is about to embark in a judicious, extensive and well-planned advertising campaign, ought to be sufficient inducement to both manufacturers and jobbers to locate in this city. Detailed information will be furnished on request.

E. H. MAYFIELD,
Business Secretary.

CITY OF THE WATER SUPPLY.

Board of Trade.
Denison, Tex., October 23.

Editor Manufacturers' Record:

Three water trains of from 20 to 30 tanks each have been leaving Denison daily for the past three months to supply a number of places with water. Early in the summer calls began to pour in on the Denison City Commission asking for water, as the supply in many of the smaller towns was diminishing so rapidly that it was thought necessary to get outside assistance. The drought continued, and at last the water situation became desperate. The Missouri, Kansas & Texas put on two water trains, making daily runs to supply these towns, and a number of railroad tanks which were unable to get further water from the pools and wells which formerly supplied them. The Texas & Pacific was another road which found it necessary to install a water train, and this has been making regular trips for some time past.

"The City with the Water Supply" has been the advertisement of the Denison Board of Trade for some time past, and this fact has been fully demonstrated during the past dry season. Reports from the Denison city water department show that 250,000 gallons daily have been hauled out of Denison to supply other places that had no water. This daily average foots up to a grand total of over 12,500,000 gallons.

The water trains made regular trips, one being made at night and one during the day. In many instances the water trains were met by delegations of people with buckets and many other utensils, and upon the train coming to a standstill there was a wild scramble to get to the tanks so that their slender supply might be once more replenished for the next 12 hours. These water trains present a very peculiar appearance, as every available engine tender or oil tank was pressed into service, and the supply was further augmented by the erection of three or four wooden tubs or tanks on flat cars.

The cars composing this train are "spotted" at convenient points in the Katy yards in Denison, and are filled by a force of men from the supply furnished by the city water mains. As soon as all these tanks are filled the train gets its clearance and starts out on its trip. Upon arrival at the places where the water is needed it is drawn off rapidly by syphons or by hose connected with holes near the bottom of the tubs or tanks, and in some cases it is pumped by the engine.

Reports from the city water department show that between 17,000,000 and 20,000,000 gallons per month are pumped for the supply of the city, the railroads and the various towns being supplied with Denison water. This figure is secured after allow-

ing 10 per cent. for slippage, and it is stated that the slippage is probable not this much, thus further increasing the amount of water pumped each month.

The Missouri, Kansas & Texas Railroad has been using about 4,000,000 gallons of city water per month, and this supply has been supplemented by the water pumped by the Katy's private plant. Early in the summer the City Commission announced that water would be furnished at a rate of 15 cents per 1000 gallons to all that desired it, and the railroads put on a very low freight rate for hauling this water in order that there would be no suffering from lack of water. The following towns have taken advantage of this chance to secure Denison water: Caddo Mills, Royse City, Leonard, Bells, Fate, Floyd, Burrow, and others towns that have not taken the water regularly. From October 13 to 19, inclusive, 259 cars of water were shipped out, 233 cars being for railroad use and 26 cars for the towns.

One of the most peculiar features of the water shortage was a call sent in from the Lignite Company at Waxahachie to put out an immense fire in the mine there. The company reported that it was necessary to extinguish or check this fire, and that it was unable to secure any water in that locality with which to do this work.

Denison's water supply is secured from deep wells supplemented by a reservoir which holds 700,000,000 gallons. At times when the city is not supplying water to the railroads the supply furnished by the deep wells is entirely sufficient to handle the daily consumption of the 20,000 people living in Denison. At times when the railroads are being supplied with large amounts of water the reservoir is placed in service and all the water coming from it is filtered. This water has been tested many times, and has always been found to be without contamination of any kind. The citizens of Denison and those of the towns supplied this summer have been loud in their praise of the fine quality of the water, and today it is regarded as the best natural asset the city of Denison possesses.

The City Commission now has nearing completion the most stupendous reservoir project in this portion of the Southwest. In order that the water supply might be secured for all time to come, and in order to get enough water so that it can be supplied to industries at the minimum cost it was decided to add to the present abundant supply of water that which will be contained in a natural reservoir a mile and a half long by a half mile wide, and 65 feet deep. This immense lake is estimated to contain 1,342,000,000 gallons of water, or, reducing it to more understanding figures, a visible water supply for five years for the city of Denison without the addition of a single drop of rainfall.

The average rainfall of 40 inches on the 11 square miles of water shed above the reservoir will furnish over 8,000,000,000 gallons annually. This amount, together with the water supply now in use, increases the grand total to over 9,000,000,000 gallons of water for the year's supply. The water shed which supplies this new reservoir is almost ideal in its natural characteristics, as it is chiefly made up of immense gay meadows, timber and uncultivated land.

The valley below the new reservoir is located immediately adjacent to the northern portion of the city of Denison, and it is 27 feet lower than the bottom of the reservoir. This will allow water to be distributed in this valley by gravity, and will entirely eliminate the cost of pumping. The City Commission is on record with the statement that water will be furnished at the absolute minimum price to all large consumers, such as factories,

packing plants and railroad shops. It is also stated that water will be furnished free of all cost to industries for a term of years in proportion to their size and value to the city.

This immense water supply, connected with the immense amount of timber for all purposes, with the facilities offered by six transportation lines, low freight rates, navigation of Red River and the most rapidly increasing market in the world, makes the statement possible that Denison is the coming industrial city of the North Texas and Southern Oklahoma section.

C. WILBUR COONS,
Secretary.

A BIG ELECTRIC PLANT.

Eagle Pass, Tex., October 22.

Editor Manufacturers' Record:

The Eagle Pass Industrial League of Eagle Pass, Tex., has under consideration the organization of a company for the purpose of installing an electric power transmission plant at one of the coal mines about three miles from the city for developing power to operate a water-works plant, an electric-light plant and an ice factory, to supply water, light and ice for both Eagle Pass and C. P. Diaz, opposite Eagle Pass, on the Rio Grande. The two towns have a combined population of 20,000. It is also intended to supply power to various manufacturing plants, and perhaps to a projected electric railway about 30 miles in length.

An electric-light plant, water-works system and an ice factory are now being operated by independent concerns, and it is contemplated to take these over, utilizing their present equipment as far as may be possible.

Estimates as to the cost of the proposed plant are desired. Local people with ample capital are back of the proposition.

FUTURE FOR COUNTY BONDS.

Large Possibilities in Issue for Good Roads.

[Wall Street Summary.]

Interviews with a number of financiers who specialize in county bonds indicate that an era of activity in that field of finance is developing which promises to assume large dimensions. On this subject one of the leading county bond investment bankers said to a reported for the *Wall Street Summary*: "The Hudson-Fulton celebration has brought to town many county officials who are soon to be in a position to issue bonds for the purpose of paying for improved roads. Few persons have an adequate knowledge of the enormous possibilities for the investment of capital in bonds issued for this purpose. The rural roads of the nation measure 2,350,000 miles. The total mileage of the steam railroads of our country is about 350,000 miles. This includes the trackage of sidings and yards. The average annual expenditure for maintaining our 2,350,000 miles of rural roads is the beggarly sum of \$70,000,000. It is estimated by competent authorities that our steam railroads expend \$350,000,000 a year for upkeep. These facts serve to show what a great field there is for those who have money to lend on gilt-edged security to take county bonds issued for building good roads. Almost three-fourths of our country roads are in a far worse condition than the roads of Imperial Rome in outlying parts of her dominions in the time of Trajan, 1800 years ago.

"One of the great bankers from Holland who came here for the Hudson-Fulton festivities told me that one can see on the roads of Holland dog teams which haul every day in the year as many pounds per dog as is credited to each horse used for hauling freight over most of the unimproved roads in parts of Long Island

and New Jersey which he has ridden over within a few days. This banker and other astute foreign financiers with whom I have talked on the question of bonds issued for improved roads in the rural districts agree with me that a vast business will be developed in this within a short time.

"The rightly-called 'object-lesson roads,' built by the Agricultural Department within a few years here and there, are powerful educational factors in stimulating the issue of county bonds for road improvement. I have been collecting statistics as to the cost of carting staple products of farms from the points of production to the nearest railroad station. Here are the main figures: It costs an average of 16 cents per 100 pounds to haul cotton from the plantations to the railroads. The average road haul by animal traction is 11.8 miles. Ocean freight on 100 pounds of cotton to a number of European ports, the distance ranging from 2000 to 3500 miles, is 32 cents. If this is not a big argument for improved roads, what is it? The entire cost of carrying 100 pounds of cotton from the farm to Liverpool or Manchester is 90 cents. The tax on the farmers for animal traction is the hardest burden that they have to bear. On the estimated amount of cotton which we shall ship abroad for account of this year's crop, the cost for carting over roads to the railroads and river and coast steamboats will be \$6,000,000, and the cost for carrying over railroads and over the seas will be about \$25,000,000. On wheat the average cost for animal traction to the railroads is nine cents per 100 pounds. On the average wheat crop of recent years the cost to the farmers for carting to the railroads is about \$35,000,000 a year, the average road haul being 9½ miles.

"The expenditure of \$4000 per mile for good country roads within the parts of the country that yield largely in cotton and cereals would nearly cut in half the cost of taking crops to the railroads. Just think of it! For years and years ocean carriers have been taking our wheat from North Atlantic docks to ports of Great Britain, an average distance of 3100 miles, at a price per bushel that is only one cent and a fraction more than the average cost to the farmer for hauling one bushel the average distance from his fields to the nearest railroad station. If we could bring down this enormous cost of road haulage by the improvement of rural roads our farmers would go far toward reducing the competition of wheat from other countries that compete against us in Europe. The United Kingdom gets a great deal of wheat that is carried 15,000 miles, as against 3000 miles from our North Atlantic ports.

"The British Ambassador to the United States has informed me that the average cost of ocean carriage for all the wheat imported into Great Britain and Ireland from East India, Australia, South America, Canada and the United States is nine cents per bushel, which is only one and two-thirds the cost of hauling a bushel of wheat over nine miles of the unimproved roads of our country. The press ought to get very busy in pushing along a general movement for good roads within the areas that contribute our great staples of agriculture. The prospective value of the business in county bonds issued for good roads should compare favorably with the market for steam railroad bonds."

W. H. Bennett, 15 Broad street, New York city, has been investigating the opportunities in Florida for the cultivation of eucalyptus trees.

During the past two years 22 industrial establishments have been added to Savannah's manufacturing equipment.

COMMERCIAL CONGRESS' DREAM.

Southern Newspapers and the "Southern Architectural Movement."

CHARITY BEGINS AT HOME.

[San Antonio (Tex.) Express.]

The MANUFACTURERS' RECORD does not approve of the scheme by which it is proposed to erect in Washington city a handsome building as a headquarters for a so-called "Southern Commercial Congress," the building fund to be subscribed by Southern States or communities.

The idea of the promoters of the Southern congress was to have a permanent agency and exposition of Southern development enterprises at the National Capital, and that a number of Southern subscribers would pay \$1000 each toward the erection of the building and the financing of the enterprise, amounting in the aggregate to something like \$1,500,000.

The scheme does not appear to have met with great success so far, as the commercial bodies in the South have not taken it up with the enthusiastic endorsement that was expected. In withholding its own approval the MANUFACTURERS' RECORD says: "In every town and city in the South there are many opportunities for wise and profitable investment in real estate, in home building, in manufacturing enterprises," etc., and it advises any man of the South who has \$1000 to spare for the benefit of the South to put it into some local undertaking for the benefit of the local community, and it is reasonable to suppose that this sort of suggestion will be very generally followed.

Of course, the South needs to exploit her resources and her investment opportunities in order to attract enterprise and capital from other sections to supplement her own in the development of latent resources and in the improvement of attractive opportunities, and this is being done quite effectively by the newspapers and other publications of the South, which are laboring zealously and earnestly for the upbuilding of the country. The South is also doing a great deal with her own capital in constructive enterprise, in the improvement of streets and highways, in the building of railways and irrigation systems, in improved methods of agriculture and in the establishment of manufacturing, in the erection of handsome buildings and in the accomplishment of things that make for progress and prosperity.

There is enough of this sort of thing requiring attention to utilize all the South's capital and energy at present without going beyond her limits to do any building elsewhere.

STOP CHASING RAINBOWS.

[Greenville (S. C.) News.]

The MANUFACTURERS' RECORD is not disposed to favor the proposed plan to erect in Washington a big office building to be known as the "Southern Commercial Congress," at the expense of the South. The MANUFACTURERS' RECORD looks on the proposition as a real estate venture, and thinks the realty men at Washington should raise the money in the District of Columbia.

Our contemporary makes the excellent point that if it is not a good investment for Washington people, surely the South is not in a position to throw away \$1,500,000 or any portion thereof. It points out, further, that in every town and city in the South there are many opportunities for wise and profitable investments in real estate in home building, in office building, in manufacturing enterprises and in movements that will attract the favorable attention of outside people to these communities.

We fully agree with the MANUFACTURERS' RECORD in saying that the South

should stop chasing rainbows and filling the pot at the end of them for someone else. As far as we have been able to discern, this million-and-a-half-dollar building project in Washington is very much of the nature of a rainbow.

FOR SPARE MONEY.

[Greensboro (N. C.) Record.]

These be times when people who have spare money are besieged to invest it. One who has a surplus of means is anxious to do so; it is the thing to do, but the question is what to invest in. Right here in Greensboro we have concerns that are paying handsome dividends, and have been for years, notwithstanding Mr. Roosevelt's panic of 1907.

On this line the MANUFACTURERS' RECORD of Baltimore tenders this bit of advice: * * *

Let the South stop chasing rainbows and filling the pot at the end of them with gold for someone else.

We know very little about the "Southern Commercial Congress" headquarters; it may be worthy and a good thing, but the advice tendered by the MANUFACTURERS' RECORD is timely and proper. The South should first invest in enterprises nearer home. The returns in the end will be found better; in fact, a great many investors in foreign enterprises have found to their sorrow that there has never been any return; it has gone into the pockets of the promoters. This is not saying that this scheme is one of the kind, for, as stated, we know nothing about it.

PASSED UP AT ASHEVILLE.

[Asheville (N. C.) Gazette-News.]

The MANUFACTURERS' RECORD of Baltimore expresses itself quite plainly in regard to the Southern Commercial Congress project, with which Asheville business men are familiar. * * *

We do not find anything wrong with the MANUFACTURERS' RECORD's reasoning, and we are inclined to think its position is well taken. The Southern Commercial Congress, with a fine building in Washington and a rich endowment, is going to be a good thing—for some people, but whether for those people living in the South who put their money into it is not so certain. The proposition has been "passed up" by Asheville's business interests, who wished the promoters all sorts of good luck, but told them Asheville had no desire to invest in Washington realty at present. Fact is, there is no better field that we know of for investment in real estate than Asheville and this section.

FOR OLD ST. MARKS.**Efforts to Revive the Importance of This Florida Port.**

Mr. Milton A. Smith, editor of the *Weekly True Democrat* of Tallahassee, Fla., is laboring earnestly in his paper for the restoration of St. Marks, Fla., one of the earliest ports on the Gulf coast, and the terminus of one of the early railroads of the country running from Tallahassee. In a recent issue, in dealing with the suggestion that if the people ask for it the Federal Government would assist in upbuilding the port, he said:

"One of our leading citizens made a visit to St. Marks last week to make some inquiries from the citizens there as to the depths and width of the river channel at that point. And to our great surprise and pleasure, on his return he reports that he was informed by some of the oldest inhabitants of the port that the channel was from 40 to 60 yards wide and from 24 to 30 feet deep, and that the greatest expense the Government would have would be to clean out the entrance of the channel where it has been stopped up since the war with parts of old boats and other rubbish used for blocking purposes during the

war. Any way, the difficulties are very small in comparison to other ports along the Gulf, and the Government would be glad to give this port its attention if the people will but signify their desire for it. From all reports it can be put in good shape for considerable less money than any port on the Gulf. We hope the Chamber of Commerce will continue to push this matter, for it will be of great benefit to this whole section of Florida to have this port put in good order."

Discussing another time the possible plans for the Seaboard Air Line Railway, he said:

"The Seaboard system now practically controls the port of St. Marks. It also has great terminal facilities at Tampa, and has already expended more than a million dollars there, which has been wise, because the road will ultimately need all the Gulf room it can get. But will it not be a wiser proposition to expend the money needed in the development of its St. Marks terminals and save more than 200 miles of land route in discharging its freights to ocean-going vessels? In fact, more than 300 miles would be saved on coal, and iron products and grain shipments from the West. The *True Democrat* predicts that as soon as it can practically do so the Seaboard will begin a process of development at Tallahassee and St. Marks that will be unparalleled in Southern development."

ROANOKE RIVER DYKE.**Authorities Considering Plans for Rebuilding Damaged Portion.**

[Special Cor. Manufacturers' Record.]

Raleigh, N. C., October 20.

The penitentiary authorities are considering the important question of rebuilding that part of the great dyke on the Roanoke River which was swept away eight years ago on the front part of the State farm of about 8000 acres, which has for 12 years been operated by convict labor. For a few years no crops were planted on the lowland, which was left unprotected by reason of the washing away of the dyke, which had been built 40 or 50 years before and on which large trees were growing. The dyke was not, however, high enough and wide enough to stand the flood. Last year corn was planted on the lowland, and 25,000 bushels were destroyed. This year the risk was again taken, and the loss is as great. The two years thus show losses totaling \$50,000. The dyke can be rebuilt and in proper shape to stand permanently for \$50,000, experts say. This is the question now before the penitentiary directors.

Bidders for the construction of the municipal building and auditorium here will be quite numerous. In December the contracts will be awarded, and the price will be around \$90,000. A number of bidders said that if time were given they wanted to come in, and this is why there was an extension until December.

Work has begun on the hotel cafe of Wm. B. Wright here. It is on a street leading from the union passenger station to the heart of the city, and faces the *News and Observer* office. The work will be done by W. B. Barrow, and the cost is to be around \$20,000.

In two weeks the work of remodeling the union passenger station here is to begin, and a little later that on the Yarbboro House. At the latter a new heating plant is also to be installed. Contracts have been let for the building of the Wake County Savings Bank, which adjoins the Citizens' National Bank, fronting on the principal street.

The directors of the State Agricultural Society are contemplating replacing the present wooden buildings in most cases with permanent ones of brick. The first

buildings at the present fair grounds were erected in 1873. The forty-ninth annual fair was held this week, and was the most successful on record. The grounds have been enlarged and many improvements made.

FRED A. OLDS.

FOR CITY IMPROVEMENT.**West Point, Miss., Alert to Modern Municipal Needs.**

[Special Cor. Manufacturers' Record.]

West Point, Miss., October 22.

There is no better index to the general prosperity and financial tone, or, to use a negroism, "good heart," of a community than the amount of money which its citizens are putting into permanent improvements. The city of West Point has recently issued bonds for the following amounts and purposes:

For the erection of a city hall, 17,000; for concrete sidewalks, \$15,000; for street paving, curb and gutter, \$20,000; for new school building for negroes, \$7000; total, \$59,000.

All the work mentioned is now in process of construction, and some items are almost completed, and in addition to this contract work the city has done with its own force a considerable amount of storm-sewer work, including catch-basins, culverts, etc. When all this work is finished this city will be the best equipped with streets, sidewalks, curb and gutters, storm sewers, etc., of any place of its population in the State, and its people have a right to be proud of their spirit of 'git up and git.'

The county of Clay, of which West Point is the capital, is expending \$10,000 for good roads, and has just completed a boulevard—a macadam road with 3 per cent. grades—from the city limits west four miles. It goes without saying that land values in this section have trebled within the last few years. Farms that went begging for buyers five years ago at \$10 to \$15 per acre are "pick-ups" now at \$40, \$60, and no credit asked.

CHAS. L. WOOD, City Engineer.

Paper from Cotton Stalks.

[Special Cor. Manufacturers' Record.]

Ocala, Ga., October 22.

The Southern Cotton Stalk Paper Co., through its representative, Mr. J. E. Green of Atlanta, met the business men of this place yesterday and completed all the necessary arrangements looking to putting in a paper mill at this place to manufacture paper from cotton stalks, of a 20-ton-per-day capacity, that will cost from \$75,000 to \$100,000, and assured the stockholders here that the mill would be in operation in less than six months from date. The Ensign-Oskamp sawmill site just north of town, at the crossing of the Seaboard Air Line and the Atlanta, Birmingham & Atlantic Railroad tracks, with an artesian well and a large storage building located thereon has been secured for the mill. The first mill to be constructed by this company will be at Cordele, Ga., and at this place will be the second of the series of the several the company proposes to put up, all in the Southern States. A test of the product from cotton stalks heretofore made is a guarantee of the success of this new Southern enterprise, and it is no longer an experiment, but the cotton planters will find a ready market for what has been heretofore not only a worthless product, but an incumbrance of their farms.

J. J. WALKER.

Special Waterways Edition.

With commendable enterprise the *Ledger* of Columbus, Ga., has issued a large and interesting special waterways edition in the interest of the Mississippi Atlantic Waterways Association, which meets at Jacksonville on November 15, 16 and 17. It contains many articles by

prominent men on subjects which appeal to those who are interested in better inland waterways. Among the contributors are Charles Jewett Swift of Columbus; Capt. H. B. Ferguson of the United States Army, Corps of Engineers; Amanda Allison Tompkins, president Woman's National Rivers and Harbors Congress; Geo. Hillyer of Atlanta; Henry W. Hill of Buffalo; Lyman E. Cooley; J. H. Drummond, vice-president for Florida of the Mississippi-Atlantic Waterways Association; John S. Bleeker, general manager Columbus Railroad Co.; Robert Isham Randolph, Chicago; J. F. Ellison, Cincinnati, secretary and treasurer National Rivers and Harbors Congress; Dr. Frederick B. Gordon, Columbus; United States Senator Duncann U. Fletcher, president Mississippi-Atlantic Waterways Association; Congressman J. Hampton Moore of Philadelphia; G. Grosvenor Dawe, John A. Fox and others.

Maryland Steel Co. Improvements.

Some time ago the MANUFACTURERS' RECORD reported the Maryland Steel Co.'s plans for extending its facilities by the construction of a \$1,000,000 open-hearth steel plant at Sparrows Point, Md. This work is now progressing, and the Maryland Steel Co. advises that further improvements are planned at a cost of \$250,000. These improvements will facilitate ore handling, and the machinery will include two 7½-ton fast unloaders, each capable of handling 500 tons of ore per hour from the vessel's hold into cars or into storage, contract for the equipment having been awarded to the Brown Hoisting Machinery Co. of Cleveland, O. Contract for a reinforced concrete bulkhead 500 feet long and 46 feet between center of supports for the unloaders has been awarded to the Raymond Concrete Pile Co. of New York. Accompanying improvements will be for transmission lines, generating power, railway trackage, etc. On the outer edges of the bulkhead will be tracks for a large electrically-operated crane, which will be installed by the Brown company. This crane will have large grab buckets of 7½ yards capacity, capable of handling 250 tons of iron ore an hour. Two car tracks on the bulkhead under the crane and chutes will be provided as part of the equipment, so that iron ore can be readily dumped into cars.

In constructing the bulkhead practically the same system will be followed as in constructing Baltimore's reinforced concrete piers. Raymond patented concrete piles will be used, these being cut off at mean low water, and on them will be erected the bulkhead. Reinforced concrete sheet piling will extend the full length of the bulkhead. The front wall of the bulkhead will be tied to the back wall by heavy Maxwell bars, and they will be used in all reinforcing work. About 11,000 cubic yards of concrete of 1-2-4 mixture will be used.

It is understood when the present bulkhead is completed other sections will be added to a total length of 1500 feet. The present pier used for unloading iron ore and loading steel rails will, it is stated, be torn away and replaced with a reinforced concrete pier.

At the formal opening of the new building of the Board of Trade of Little Rock, Ark., last week speeches were made by President H. L. Remmel, Attorney-General Hal L. Norwood of Arkansas, President W. M. Kavanaugh of the Little Rock Packet Co., Hugh B. Wright of the Clyde-Charleston Line, George W. Rogers, Manager A. R. Bragg of the Merchants' Freight Bureau, and President Frank B. Gregg of the Retail Merchants' Association.

RAILROADS

[A complete record of all new railroad building in the South will be found in the Construction Department.]

ROCK ISLAND'S PROGRESS.

Extension Completed and New Route Put in Service—Industrial Development.

The Chicago, Rock Island & Pacific Railway Co. has issued its annual report covering the fiscal year ended June 30, 1909. Comparisons are made with the fiscal year of 1908. The total revenues were \$60,818,474, increase \$2,701,849; total operating revenue \$61,184,887, decrease \$2,700,690; total operating expenses \$42,513,495, increase \$377,315; net operating revenue \$18,671,392, increase \$2,323,375; operating income after payment of taxes \$16,400,527, increase \$1,842,405; total income \$16,611,998, increase \$1,925,243; surplus after payment of fixed charges and dividends \$2,236,212, increase \$1,447,895; profit and loss surplus \$17,767,261, increase \$1,608,139.

On the line between Amarillo, Tex., and Tucumcari, N. M., under construction, 12 miles west from Wildorado to Vega, Tex., were put in operation last March; two miles more were put in operation on May 1 to Ontario, Tex., and six miles west from Ontario on May 15. The line is laid with 60-pound rail.

Announcement was made last year of the completion of the Rock Island, Arkansas & Louisiana Railroad from Haskell, Ark., near Little Rock, to Eunice, La. The Colorado Southern, New Orleans & Pacific Railroad, with which the Rock Island connects at Eunice, was finished in August of this year, and the through line to New Orleans is now in operation.

During the fiscal year there were established in the territory served by the system 102 new industries, which are said to have cost over \$8,000,000, to employ more than 11,000 persons and to create a movement of over 57,000 carloads annually. Three new side-tracks were built to coal mines and 82 were built to private industries. On June 30 last 346 miles of main line were protected by automatic block signals, and the telephone system of train dispatching on the same date had been installed on 419.5 miles of the company's line. For the completion of additional and improved terminals and for new facilities of a similar nature there was expended during the last fiscal year \$644,307.

Orders were placed during the year for 100 passenger cars, 60 cabooses, 2 service cars, 35 locomotives and 1 passenger motor car. Since July 1 of this year there have been ordered 50 locomotives, 1 passenger motor car and 3550 freight cars. There were received and placed in service 33 locomotives, 1 passenger car, 2 service cars and 2 motor cars, while 1 service car was built.

Kansas City Southern's Year.

The Kansas City Southern Railway Co.'s ninth annual report covers the fiscal year ended June 30, 1909. It shows gross earnings from operation \$8,771,965, increase \$14,047; operating expenses \$5,350,056, decrease \$410,202; net earnings \$3,421,909, increase \$424,249; net earnings after the payment of taxes \$3,099,629, increase \$385,108; ratio of operating expenses to earnings 60.99 per cent., decrease 4.78 per cent.; ratio of operating expenses and taxes to earnings 64.66 per cent., decrease 4.34 per cent.

On account of the unsettled commercial conditions that prevailed during the year it was thought best to suspend improvement work except that necessary to complete improvements that could not be left unfinished; to construct certain industrial tracks needed to protect the traffic and to

increase the length of passing tracks in order to accommodate the longer trains resulting from the use of heavier locomotives over improved track. Under this plan there was expended \$565,343, of which \$556,467 was for road, bridges and buildings. Preparatory to making needed additions to uptown team track facilities at Kansas City there was purchased during the latter part of the year the necessary real estate at a cost of \$117,000. During the fiscal year about 11½ miles of new yards and side-tracks were constructed, including service to 23 industrial establishments not heretofore reached. Thus the total expenditures for additions and improvements were \$682,343.

The relaying of track between Texarkana and Shreveport with new 85-pound rail was suspended November 30, 1908. Arrangements, however, were made in June, 1909, for this work, together with certain grade reductions incident thereto, to be completed about November 1, 1909. This, with the improvement of the track between Belt Junction and Grandview, which will also be relaid with 85-pound rail, the cuts and fills being widened, will give a standard track with heavy rails for practically the entire distance of 560 miles from Kansas City to Shreveport.

New Equipment, Rails, Etc.

The Norfolk & Western Railway has arranged for new equipment as follows: Five Mallet engines from the Baldwin Locomotive Works, Philadelphia, to be delivered in February, total weight 390,000 pounds, of which 260,000 pounds are on the drivers; five Mallet engines from the American Locomotive Co., New York, to be delivered in February, total weight 360,000 pounds, all on drivers; 500 steel-frame stock cars of 40 tons capacity from the American Car & Foundry Co., St. Louis; 500 steel-frame box cars of 40 tons capacity, and 500 steel-bottom coal cars of 50 tons capacity from Barney & Smith Car Co., Dayton, O. In addition to this the railroad company expects to build at its Roanoke (Va.) shops next year 2000 steel hopper-bottom coal cars like those to be built by Barney & Smith.

The Baltimore & Ohio Railroad Co. has authorized the purchase of 3600 steel hopper cars and 1000 steel underframe box cars. Including 50 freight locomotives just ordered from the American Locomotive Co., the Baltimore & Ohio's equipment orders now to be filled amount to 110 locomotives, 2500 box cars, 1000 gondola cars, 500 refrigerator cars, 2000 coke cars and 4000 hopper cars. These contracts amount to about \$15,000,000.

The St. Louis & San Francisco Railroad has filed an equipment mortgage in Mississippi covering new rolling stock costing \$2,650,000 as follows: 30 locomotives, of which 10 are the Pacific type; 1000 steel coal cars, of which 500 are hopper pattern; 5 combination passenger and cafe cars, 10 passenger and baggage cars, 10 passenger coaches, 6 mail cars, 250 flat cars, 150 cabooses, 3 hoists and 3 wrecking cranes of 100 tons capacity. Much of this is to be delivered next month and the remainder over a period of eight months.

The Rock Island system has filed an equipment mortgage in Louisiana covering rolling stock at a cost of \$5,300,000 as follows: 85 locomotives, 100 steel passenger cars, 110 cabooses, 1950 box cars, 500 coal cars, 500 flat cars, 500 fruit cars and 150 stock cars. This equipment is to be delivered in 1909 and 1910.

The Atlantic Coast Line has ordered from the Virginia Bridge Co., Roanoke, Va., 170 tons of bridge steel.

The Norfolk & Western Railway is reported to have ordered bridge steel as follows: American Bridge Co., New York,

1400 tons; Virginia Bridge Co., Roanoke, Va., 1150 tons; Pennsylvania Steel Co., Steelton, Pa., 625 tons.

The Charlotte Harbor & Northern Railroad is reported in the market for 25 box cars and 25 flat cars, all of 30 tons capacity.

The Atlantic Coast Line has ordered from the Hicks Locomotive and Car Works, Chicago, six steel underframe passenger cars and four steel underframe express cars, to be delivered by January 1.

The Norfolk & Southern Railway has ordered two gasoline motor cars—one of large size and another of moderate capacity—from the McKeen Motor Car Co., Omaha, Neb. They are to be delivered in January. The railroad has also ordered 1600 tons of 70-pound open-hearth steel rail from the Pennsylvania Steel Co.

The Winston-Salem Southbound Railroad is reported to have ordered 3500 tons of rails from the Carnegie Steel Co., Pittsburgh, and 2000 tons from the Bethlehem Steel Co., Bethlehem, Pa.

The Grafton Traction Co., Grafton, W. Va., is reported in the market for two open cars.

The Helena (Ark.) Gas Co. is reported getting prices on gasoline motor cars for street-railway service.

The Muskogee (Okla.) Electric Traction Co. is reported to have ordered six cars of the pay-as-you-enter pattern from the Danville Car Co., Danville, Ill.

The Oklahoma Railway of Oklahoma City, Okla., has ordered three interurban cars 54 feet long from the Niles Car & Manufacturing Co. of Niles, O. The railroad is also building two steel combination locomotive work cars.

The Birmingham & Edgewood Electric Railway, Birmingham, Ala., has ordered 400 tons of open-hearth steel rails from the Tennessee Coal, Iron & Railroad Co.

C. G. Nichols, Greenwood, Miss., is reported in the market for a gasoline motor car.

New Railroad Plans.

Among the new lines of railroad recently incorporated or projected are the following:

Ohio, Kentucky & Atlantic Railroad Co., chartered in Delaware and also in Kentucky with \$50,000 capital to build a line from Greenup, Ky., through the Eastern Kentucky coal fields to the Atlantic coast. A report from Frankfort, Ky., says that H. S. Gould is one of the stockholders. The incorporators in Delaware are J. F. Varcoe of Brooklyn, N. Y., and W. N. Akers and W. J. Maloney of Wilmington, Del.

Lawton & Fort Sill Electric Railway Co. chartered in Oklahoma to build 20 miles of line in Lawton, and from that town to the Government reservation at Fort Sill, Okla.; estimated cost \$140,000; capital stock \$200,000. The incorporators are Simon Smith of Oklahoma City, W. H. Pattie, D. L. Sleeper and J. H. Miller of Tulsa and J. B. Sleeper of Lawton, Okla.

Coffeyville & Nowata Railway & Power Co., to build 25 miles of interurban railway between Coffeyville, Kans., and Nowata, Okla., at a cost of about \$25,000 per mile; capital \$100,000. The incorporators are J. C. Denton, W. V. Thraves and J. A. Tillotson of Nowata, Okla.; John B. Pollard and W. P. Brown of Coffeyville, Kans.

St. Louis & Kansas City Electric Railway, to apply for a charter in Missouri to build a line connecting the two cities named, 250 miles. Charles A. Loomis of Kansas City, who is preparing the charter for the company, is quoted as saying that it has no connection with any other organization and has ample capital. The authorized stock is \$5,000,000.

Waco, Belton & Georgetown Railway Co., which will apply for a charter in Texas to connect the three cities named. The Young Men's Business League of Waco is a prime mover in the enterprise. E. Rotan, S. P. Brooks, J. C. Dillard and others of Waco; also George W. Tyler, Pitts Turner, Charles G. Smith and others, representing the other towns, are prominently interested.

Interurban Railway Co. of Helena, Ark., which proposes to build electric interurban railways in the vicinity of Helena; capital \$10,000. The incorporators are E. C. Horner, president; John S. Horner and C. H. Purvis.

Anacoco Valley Railway Co., capital \$25,000, chartered in Louisiana, according to a dispatch from Lake Charles, to build a lumber line. The incorporators are members of the Galloway Lumber Co., which has a mill at Grabow. The officers are: M. M. Galloway, president and general manager; J. U. Kerr, vice-president, and Marzook Galloway, Sr., secretary and treasurer.

Georgia Southern & Florida.

The Georgia Southern & Florida Railway report for the fiscal year ended June 30, 1909, shows gross operating revenues \$1,966,937, increase as compared with last year \$33,391; total operating expenses \$1,442,018, decrease \$204,864; net operating revenue \$554,919, increase \$238,257; net revenue \$573,172, increase \$236,574; operating income after deducting taxes \$474,365, increase \$230,394; total gross income \$522,918, increase \$84,202, there having been a decrease in income from other sources than operating; total available income \$485,230, increase \$87,080; balance after the payment of interest, dividends, etc., \$111,888, increase \$90,890; surplus \$102,193, increase \$97,723; ratio of operating expenses to operating revenues 72.21 per cent., a decrease of 11.66 per cent.

President W. W. Finley says: "There have been erected during the year the following new industries: Ten lumber mills, two of which have daily cutting capacity of 70,000 feet; one cottonseed-oil mill, one fertilizer factory, one ice manufactory, seven cotton gins, one cotton warehouse, five turpentine stills, two electric-light plants and one water-works. Several other industries are practically determined upon. * * * On the Terminal line at Jacksonville, Fla., a number of industries have also been located, including a very large creosoting plant now in course of construction, which will utilize lumber heretofore of little merchantable value and will furnish shipments of importance.

"Special efforts are being made to promote the raising of increased quantities of fruits and vegetables, and it is confidently expected that these efforts will meet with success. The industrial department, recently organized, will aid materially in this agricultural development work, as well as in the establishment of industries, for which the favorable location of the road offers exceptional advantages."

Colorado & Southern Lines.

The tenth annual report of the Colorado & Southern Railway, which covers the fiscal year ended June 30, 1909, also includes all the lines operated by that company, such as the Fort Worth & Denver City, the Wichita Valley, the Wichita Falls & Oklahoma and the Abilene & Northern, which are either in Texas or Oklahoma. The total operating revenues were \$15,080,412, increase as compared with 1908 \$797,279; total operating expenses \$10,225,687, increase \$682,878; net operating revenues \$4,854,724, increase \$114,401; operating income after the payment of taxes, \$4,453,682; total

corporate income \$4,920,384, increase \$285,423; net corporate income \$2,918,850, increase \$85,528; surplus after the payment of dividends \$898,859, which was a decrease as compared with last year, owing to the fact that a dividend of 2 per cent. was declared on the common stock, which was not paid last year. Had the dividend on the common not been paid the surplus would have shown an increase of \$85,528.

Concerning new work the report says that construction of the Stamford & Northwestern Railway was begun in January last. The line extends from Stamford, Tex., northwest to the center of Dickens county, about 82½ miles, terminating in the middle of a large tract of excellent farm land. Railroad facilities are also furnished to the intermediate country, which was previously partly developed. The Colorado & Southern is advancing money for the work. It is hoped to soon have 60 miles in operation, and the entire line completed this fall. The company operates 1979 miles of line.

Gainesville Midland Extension.

The Gainesville Midland Railway Co., Gainesville, Ga., contemplates an extension of about 50 miles from that place to Robertstown, Ga., with a branch from Chestatee to Willow, Ga. The route is via Price and Murrayville through a mountainous country. Survey is being made by Aaron Johnston of Gainesville. The line is to reach several large tracts of timber land to the northward, but nothing definite is decided as to construction pending completion of the survey. Two bridges will be required of importance, one over the Chattahoochee River with two spans of 135 feet each, and other over the Chestatee River with a 100-foot span. Several creeks will require spans of 50 feet each. E. B. Eppes is general manager of the railway at Gainesville, Ga.

Sewell Valley Railroad.

The Sewell Valley Railway Co. of Evenwood, W. Va., has completed eight miles of line, according to a report quoting T. W. Raine, president, and 11 more miles have been graded. This latter will be finished by Christmas. The road is a lumber line, and Mr. Raine and associates are building a large three-band sawmill at a new town called Raine. It will have a capacity of 100,000 feet per day.

It is further said that this winter engineers will locate an extension of the Sewell Valley Railway from Raine through Nicholas county to connect with the Baltimore & Ohio Railroad, and when all its track is completed the company will have between 80 and 100 miles of railroad. It owns the timber and coal on 33,000 acres of land.

Railroad History in Texas.

"Railroad Transportation in Texas" is the title of Bulletin 119 of the University of Texas, which issue was prepared by Charles S. Potts, M.A., LL.B. It covers the railroad history of Texas and describes the relations of the State to the companies. There are more than 200 pages, which are full of good material. Anyone interested in the various steps taken toward the regulation of railroads by law will find in this book much to hold their attention and enlighten them. Texas has been conspicuous for its rigid laws regulating transportation companies, and this sketch shows how the railroad commission came to be formed and the results thereof. It is published by the University of Texas at Austin.

Railroad Notes.

J. S. Lemond, engineer maintenance of way for the Southern Railway at Char-

lotte, N. C., has been elected president of the American Railway, Bridge and Building Association, which held its annual convention at Jacksonville, Fla.

President J. T. Harahan of the Illinois Central Railroad is quoted in a report from Memphis, Tenn., as saying: "We are now equipping all our passenger trains with all-steel coaches just as rapidly as we can get them from the factories."

R. S. Lovett has been elected president of the Union Pacific Railroad and of the Oregon Short Line. It is expected that he will also be elected president of the Southern Pacific Railway. This fills several important vacancies caused by the death of E. H. Harriman.

Contract Awarded for Plant.

A report from Savannah states that the Southern Fertilizer & Chemical Co. of that city has awarded a contract to the Pratt Engineering & Machine Co. of Atlanta for the construction of its proposed fertilizer plant at Savannah. The plant will be modern in design and construction, equipped for a capacity of from 30,000 to 35,000 tons of fertilizer per season, and will cost about \$50,000. Phosphate rock, it is stated, will be brought from Florida, but the plant will be constructed without acid chambers, as this product will be procured from the Ducktown plant of the Tennessee Copper Co. Gas condensers will be employed for the purpose of eliminating obnoxious odors. Officers of the Southern Fertilizer & Chemical Co. include W. G. Barnwell, president; J. J. Bauers, vice-president, and A. D. Strobhar, secretary, treasurer and general manager.

Old Ways Played Out.

[Florence (Ala.) Times.]

The State Good Roads convention formally announced that the old way of building roads has played out. Every sensible man must agree with this proposition. The next thing is to get away from the old plan. If a thing is bad, it should be eliminated. The old way is confessedly bad. What plan shall we now adopt? The question is directly upon us!

Wants Soldered Metal Casings.

J. Mendelsohn, Lodz, Russia, writes the MANUFACTURERS' RECORD: "I wish soldered metal casings for dyeing yarns upon capsules, cross spools and spools with metal cones. I have already had a communication from Messrs. E. Jagger & Co., Oldham, but I would like to have the names of some other makers from you."

Silicate-of-Soda Machinery.

National Mining & Milling Co., Berkeley Springs, W. Va., writes the MANUFACTURERS' RECORD: "Julio Rendon, Calle 53, No. 353 (Chuminopolis), Merida, Yucatan, Mexico, desires to communicate with firms making machinery used in the manufacture of silicate of soda."

Miners' Dip Needles.

Thomas B. McLaughlin, Centrale Ausonia Sugar Co., Asun, Santo Domingo, writes the MANUFACTURERS' RECORD:

"Can you put me in communication with a few manufacturers (or sellers) of what is commonly known as a miner's dip needle or still another name—divining rod?"

The Board of Trade of Waycross, Ga., has become interested in a project for the building of a canal giving that city access to deep water.

From the convict farm of Mississippi 800 tons of cottonseed were sold last week for \$21,600.

FOREIGN LETTERS

The MANUFACTURERS' RECORD is so widely read in foreign countries that we are in constant receipt of many letters from all parts of the world. Some of these letters indicate the disposition of foreigners to buy American goods, and are therefore of interest to our readers.

Wants Candy Machinery and Shears.

C. C. MacKee Company, Hong Kong, China, writes the MANUFACTURERS' RECORD: "We will appreciate your placing us in communication at your earliest convenience with parties who can supply shears suitable for cutting scrap metal, boiler plate, etc., up to ¾ inches thick. Please request immediate response with complete catalog or illustrations, with best export prices thereon. We do not want the drop shear, but require those constructed on the principle of a blade being closed in a pocket knife, with the material to be sheared ranging from 5 inches or 6 inches width of material up to 30 inches. We have an inquiry for complete outfit for candy-making machinery, including the preparatory and finishing work, forms for various styles of hard candy drops, sticks, etc., and would like the most complete data and best prices obtainable promptly."

For Demands in Turkey.

Aperghi & Carrie, Smyrna, Turkey, write the MANUFACTURERS' RECORD:

"As to American products which would find a ready market in our country and which affect our interests in many instances, we may mention iron and steel bars and sheets (the United States Steel Products Export Co. is already represented here), barbed wire, nails, piping, etc., petroleum, cotton oil, cotton goods, yarns, etc.; in fact, any textile goods. Having a 20 years' experience in this market, we are in a position to obtain a ready sale for any of the above-mentioned goods."

Automobile and Carriage Supplies.

Emilio de Los Rios, Apartado 2523, Mexico City, writes the MANUFACTURERS' RECORD:

"I am interested in all kinds of American goods for coaches, wagons and automobiles, principally in the following articles: Wheels, spokes, rims, hubs, bows, shafts, etc.; springs and axles for wagons and carriages, sarven and other kinds of iron hubs, screws and nuts of all kinds, steel for tires and springs, machinery, tools and carriage hardware in general, lamps, leathers, rubber mats and oilcloths for automobiles and carriages."

An Incline Railway Proposition.

The South African Supply Co., Wm. A. Haygood, Box 1430, 54 Long street, Capetown, Africa, writes the MANUFACTURERS' RECORD: "There is a great opportunity here for an enterprising firm of engineers to secure an exceedingly valuable franchise for the construction and operation of an incline railway to the top of Table mountain. I am prepared to furnish particulars and to conduct negotiations for any firm having such a rating as will secure municipal confidence from the start."

Wants Flour Mill Machinery, Etc.

Nicholas Georgiades, Constantinople, Turkey, writes to the MANUFACTURERS' RECORD: "We are interested in getting equipment to be operated by steam for making flour. If later on I should be in need of any other kinds of machinery, I will let you know by all means. If possible, please give me some names of makers of 'galaches' (rubber shoes), metals, cotton goods, woven fabrics (dress goods) and some exporters of petroleum."

TEXTILES

Correspondence relating to textile matters, especially to the cotton-mill interests of the South, and items of news about new mills or enlargements, special contracts for goods, market conditions, etc., are invited by the MANUFACTURERS' RECORD. We shall be glad to have such matters at all times, and also to have any general discussion relating to cotton matters.

A Mill Labor Suggestion.

Mr. W. D. Coggeshall of Darlington, S. C., writing to the MANUFACTURERS' RECORD regarding the policy of the cotton mill shutting down or cutting time, says:

"This is all nonsense, for never in their history could they less afford to do this. For it does not only disorganize their labor for the present, but it means that these operatives will go to the cotton farms and they cannot get them back for a year; they will have to break in new labor or do without it. The mill laborers are most all trying to get farms to move to, and at best next year labor is going to be very scarce and very inferior. Then, if this labor goes on the farm, it is green and unfit for farming and will more than likely make a failure, and that will reduce the crop again next year.

For three years we have been doing everything we could to raise all the cotton the South could produce. We have had two good years out of the three, and we find ourselves about 2,000,000 bales short of the world's consumption. Can we afford to put unfit labor on the farms, and can the mills afford to put green labor behind their looms? Would it not pay them much better to keep them at work than to let them go?

"We are now planting all the land that we can cultivate in cotton, and are buying all the fertilizers that our credit will stand. We are planting improved cotton to increase the yield of lint, and with all of this we find ourselves short in number of bales, notwithstanding we are packing our bales short weight to make them number more."

The Republic Cotton Mills.

The Republic Cotton Mills of Great Falls, S. C., will be organized with a capital stock of \$600,000 to build a plant of 25,000 spindles and 640 dobby looms, driven by electricity from the local transmission lines of the Southern Power Co. of Charlotte, N. C. This company's officers will be: President, Robert S. Mebane of the Bellemont Cotton Mills and other companies, Graham, N. C.; vice-president, Thos. B. Fuller, president of the Golden Belt Mfg. Co., Durham, N. C.; secretary-treasurer, Hal B. Mebane, Graham, N. C. The architect and engineer in charge is J. E. Sirrine of Greenville, S. C.

The company has purchased land for site, and will make general mill village improvements, providing sewerage system, water supply, electric lighting, etc. It will also erect warehouses, operatives' cottages, church, school, library and department store, with auditorium on second floor. Its spinning mill will be two stories high, about 635x132 feet, and the weave shed will be a one-story structure. About 15,000 horse-power will be required for the plant, and gray goods will be manufactured.

A New Cotton Stripper.

The MANUFACTURERS' RECORD is informed that R. A. Smith of Spartanburg, S. C., has invented a cotton stripper for carding machines in cotton mills, and expects to close a contract within the next 48 hours for manufacturing the device. It is claimed that a test of the stripper showed that it will save from three to five pounds on each carding machine, ac-

cording to the stock used, and will make stronger cloth and cleaner yarns at a considerable saving to manufacturers. The machine will be manufactured at the Russell-Compton Machine Shops for the present.

The Entwistle Manufacturing Co.

The Entwistle Mfg. Co. of Rockingham, N. C., awarded contract at \$64,000 to W. J. Stephenson & Son of Rockingham for erecting its mill building, as stated last week. This structure will be of mill construction, 128x480 feet, with engine and boiler-room, one and two stories, with steam-heating plant, electric-lighting fixtures, steam-power freight elevators, etc. C. R. Makepeace & Co., Providence, R. I., are the architects in charge. The Entwistle mill is to have 40,000 spindles and 1000 looms.

The Monarch Cotton Mills.

The Monarch Cotton Mills of Union, S. C., will hold its annual meeting of stockholders on November 22. Besides the usual routine, this company will give consideration to a proposition to increase its capital stock from \$650,000 to \$1,150,000 and enlarge the plant. At present the company is operating 41,000 ring spindles, 1000 broad looms, etc., on the production of wide-print cloth.

The May Hosiery Mills.

The May Hosiery Mills of Nashville, Tenn., has been incorporated with a capital stock of \$60,000 by Messrs. Jacob May, A. E. Martin, G. S. Andrews and T. C. Boyd. This company will establish a mill with a daily output of from 1500 to 2000 dozen pairs of children's hosiery. It will erect a mill building three stories high, 50x65 feet, and a one-story warehouse, with floor space of 7000 feet.

Increasing Bleaching and Finishing Plant.

The Union Bleaching & Finishing Co., Greenville, S. C., will increase its capacity about 50 per cent., and has awarded contract for the necessary machinery. This company bleaches, dyes and finishes cotton piece goods. Its New York office is at 53 Leonard street.

E. L. Shuford Manufacturing Co.

The E. L. Shuford Manufacturing Co. of Lawton, Okla., will be organized with a capital stock of \$500,000 by E. L. Shuford of Hickory, N. C., and associates. It plans the construction of a mill to be equipped with 10,000 spindles and 340 looms for manufacturing cotton cloth.

The Knitting Mills Corporation.

The Knitting Mills Corporation of Norfolk, Va., has been chartered with a capital stock of \$25,000 and the following officers: President, G. P. Peed; vice-president, W. L. Lamerdin; secretary-treasurer, H. R. Furr.

Textile Notes.

It is reported that the Standard Hosiery Mills Co. of Creedmoor, N. C., will increase its capacity. Present equipment is 20 knitting machines and accompanying apparatus.

The court has confirmed the sale of the Elk Mountain Cotton Mills of Asheville, N. C., to J. A. Martin of Hickory, N. C. His bid was \$144,000, and it is understood he will organize a company to operate the plant.

C. M. Cooke, Jr., of the Transylvania Cotton Mill Co., Brevard, N. C., and W. C. Cooke, Spartanburg, S. C., have leased the Bellevue Cotton Mills at Newport, Tenn. This plant contains 3800 spindles for yarn production, and the lessees will install machinery for knitting hosiery.

LUMBER

[A complete record of new mills and building operations in the South will be found in the Construction Department.]

Turpentine Operators' Association.

At the ninth annual convention of the Turpentine Operators' Association, which was held at Jacksonville last week, a resolution was adopted providing for the establishment of principal offices at Jacksonville and the employment of a chief clerk to the secretary, whose entire time shall be devoted to the business of the association. Mr. Royal S. Kellogg of the United States Forest Service read for the information of the operators a copy of the supplementary schedule containing a number of questions to be answered by naval stores manufacturers for the Federal census of 1910, explaining that the census department wished to obtain an expression of views of the operators upon the form and questions with a view to changing them if it were deemed necessary. The association adopted a motion giving the executive committee full power looking to the placing of the association upon a business basis. The following officers were elected: J. G. Boyd, Jacksonville, president; A. Sessoms, Bonifay, Fla., vice-president; John Henderson, Jacksonville, treasurer, and James A. Holloman, Jacksonville, secretary. Members of the executive committee include P. L. Sutherland, Jacksonville; R. S. Hall, Ocala; S. A. Alford, Chipley; J. L. Medlin; J. C. Edwards, Green Cove Springs; C. H. Davis, Manatee; W. M. Toomer, Jacksonville.

Erecting Large Woodworking Plant.

The MANUFACTURERS' RECORD is advised concerning the progress of the New State Lumber Co. of McAlester, Okla., toward the construction of its extensive woodworking plant in that city. The company has completed the erection of its main building and equipped it with modern machinery for planing and dressing lumber and for the manufacture of all kinds of molding, tancy dressed lumber, sash, doors, etc. It is at present constructing a drykiln, and contemplates the establishment of a sawmill, being able to procure timber in the immediate vicinity of the plant, where it already owns about 11,000,000 feet. The company is capitalized at \$100,000, but will probably increase this soon. Its officers include C. W. Dawley, president, and J. L. Waggoner, vice-president and general manager.

Gulf Coast Lumber Exporters.

The second annual convention of the Gulf Coast Lumber Exporters' Association was held at Mobile last week, with representatives from all the Gulf cities in attendance. Subjects relating to the exportation of lumber were discussed, and it was decided to establish agencies of the association in European countries, making London the headquarters of the agencies, with branches in every city with which members of the association trade. Reports of the secretary and treasurer showed the association to be in good condition and prospects bright for the coming year. The following officers were elected: Robert Hunter, Mobile, president; G. Eitzen, Pensacola, vice-president; J. O. Elmer, Mobile, secretary, and A. C. Ganahl, Mobile, treasurer.

Florida Timber Development.

Regarding his reported purchase of timber lands in Florida for development purposes, A. N. Belcher of Centerville, Ala., advises the MANUFACTURERS' RECORD that he has bought 8000 acres of long leaf yellow pine timber in Gadsden and Liberty counties, Florida, and expects to begin early next year the construction of a log-

ging road to facilitate its development. This road will be about 10 miles long, and will connect either with the Seaboard Air Line or Apalachicola Northern Railroad. It is also intended to establish a band-saw mill of 50,000 feet daily capacity, with steam drykilns, planing mill, etc., the location of which has not been determined.

Lumber Merger in West Virginia.

Effective November 1, it is announced that the West Virginia Pulp & Paper Co. of Davis, W. Va., will absorb the corporate interests of the West Virginia Spruce Lumber Co., operating at Cass, W. Va. The latter company has been allied with the West Virginia Pulp & Paper Co. in its lumbering operations, but hereafter the entire property will be operated as the West Virginia Pulp & Paper Co. It is stated that the lumber manufacturing and marketing will be continued under the personal management of Samuel E. Slaymaker of S. E. Slaymaker & Co., which firm will act as lumber sales agents for the company, with offices in the Fifth Avenue Building, New York. The West Virginia Pulp & Paper Co. owns about 100,000 acres of timber lands in the Cheat River Valley.

New Naval Stores Company.

The Independent Naval Stores Co. of Lake Charles, La., has incorporated with a capital stock of \$200,000 for the production of naval stores, and is said to have made extensive purchases of timber lands in the vicinity of Lake Charles. Its officers are H. H. Gordon, Bay St. Louis, Miss., president; A. Vizard, Jr., New Orleans, vice-president, and John H. Long, Bay St. Louis, secretary and treasurer.

Wants Pine Lumber.

The Crystal Block Coal Co., Louisa, Ky., writes the MANUFACTURERS' RECORD that the company wants to buy a carload or more of medium grade pine lumber.

Firm Wants Basswood Lumber.

G. Elias & Bro., 965 Elk street, Buffalo, N. Y., want several carloads of 2 1/2 x 8 to 10-inch by 12, 14 and 16-foot first and seconds basswood.

MINING

Kentucky Coal Development.

According to authentic information received by the MANUFACTURERS' RECORD, the Deer Creek Coal Co., Hiram Bradley, secretary, Morehead, Ky., is completing plans for the development of 3000 acres of coal lands in Carter county, Kentucky. The lands are located on the lines of the Eastern Kentucky and Chesapeake & Ohio railroads, and are said to contain a seven-foot vein of coal analyzing 7.07 per cent. moisture, 39.82 per cent. volatile combustible matter, 49.50 per cent. fixed carbon, 2.59 per cent. ash and .92 per cent. sulphur. There is also a four-foot vein, which is said to be a purer coal. The construction of the mining plant will be in charge of W. J. Von Borries of the Harris Engineering Co. of Louisville, but it has not been determined when bids for the work will be invited.

Incorporates With Large Capital.

Articles have been filed at Charleston, W. Va., for the incorporation of the Atlantic Coal Co. of that city with an authorized capital stock of \$6,000,000 to develop coal lands in West Virginia. Its incorporators are W. F. Baird, H. D. Montgomery, O. H. Bateman and W. A. Shaffer of Pittsburg, and R. M. McKinney of Dearosburg, Pa. Regarding its development plans the company telegraphs the MANUFACTURERS' RECORD that it is not desirable to announce them at this time.

Southern Governors' Practical Interest in Highway Improvement.

Their Messages to the Manufacturers' Record Telling of the Situation and Outlook in Their States.

GOOD ROADS DAY DAWNING IN SOUTH CAROLINA.

STATE OF SOUTH CAROLINA,
EXECUTIVE CHAMBER.

Columbia, S. C., October 15, 1909.

Editor Manufacturers' Record:

The good-roads question is one that I am deeply interested in and feel great concern about. Many of the counties in this State are improving the highways running through them—some with clay and sand and some with macadam. Where this has been done, it has brought prosperity and pleasure with it.

With good roads and good schools no one need leave the rural home. To live where nature surrounds one on all sides is a privilege many would be glad to enjoy. In the making of roads I hold to the idea that the work should be of a permanent nature, and that every year more work of this kind should be done in each county. Take the courthouse town and work out from it in every direction. While it may take some time to "get around" in this way, still, if no beginning is made, we will have bad roads.

With our county convict labor supplemented with a small tax, the work can be done in a few years, and the saving on the wear and tear of stock, wagons, buggies and carriages would soon reimburse the taxpayer for the taxes he has paid, to say nothing of the comfort it would bring to the traveler.

The day of good roads is dawning, and I shall do all I can to further the work in this good State.

Respectfully,



Governor.

HOPE FOR CONSTITUTIONAL AMENDMENT IN KENTUCKY.

STATE OF KENTUCKY,
EXECUTIVE DEPARTMENT.

Frankfort, October 13, 1909.

Editor Manufacturers' Record:

I thank you for your letter of the 9th. The people of Kentucky are beginning to take very great interest in the building of good roads, and I am not without great hope that the Constitutional Amendment, which is to be voted on by our people at the November election, will be adopted, although the con-

ditions leave some doubt, as in all such elections of Constitutional Amendments many fail to vote.

I cannot add to the literature on the subject of good roads anything personal or new. I have been preaching for 30 years to our people that good roads are more important to them than all the politics that has been talked in Kentucky for 50 years, and as a very great part of the energy and force of our people in all that time has been given to talking politics, you will see that I regard it as of supreme importance. No public movement, in my judgment, is as important to all the people of our country as the good-roads movement. Nothing can add so much to their comfort, their happiness and their success and to the value of their prosperity and the enjoyment of its use as good roads, and I believe that finally every neighborhood in every State will take up the movement and insist on an end to bad roads, and of their incalculable discomfort, waste, loss and injury.

Yours truly,



Governor of Kentucky.

FLORIDA ALIVE ALONG EVERY LINE OF ADVANCE.

STATE OF FLORIDA,
EXECUTIVE CHAMBER.

Tallahassee, October 19, 1909.

Editor Manufacturers' Record:

Replying to your esteemed favor, the citizens of some counties of our State are thoroughly alive to the benefits of good roads. The roads in our State are being built entirely by the counties. In most of the counties the roads are built by annual assessments on the property situated in the county. In some of them the county prisoners work on the roads. Some counties have bonded themselves for as much as a quarter of a million dollars or more for the purpose of building roads.

Throughout Florida there are various kinds of good-road material. Wherever sand exists there is usually red clay beds within a half mile of each other. In such cases road machines are used on the sand. Red clay is then laid several inches on the sand and rolled. After it rains, if necessary, more sand is placed on it, until the road becomes hard.

In other portions of the State there is lime and a low grade of phosphate, the grade being too low for shipment. In such cases this is spread upon the roads.

I am satisfied that in proportion to the population there are

more miles of graded roads in Florida than in any Southern State. Florida is alive along every line of development—spiritual, educational, moral, material and financial.

Yours very truly,

Albert W. Gilchrist

Governor.

IN SYMPATHY WITH NORTH CAROLINIANS' EFFORT.

STATE OF NORTH CAROLINA,
EXECUTIVE DEPARTMENT.

Raleigh, October 18, 1909.

Editor Manufacturers' Record:

Replying to your letter of the 9th, I will say that I am in thorough sympathy with the efforts of our people to improve the public highways of North Carolina.

Yours truly,

W. M. E. Glasscock

Governor.

STRONG SENTIMENT CRYSTALLIZING IN TENNESSEE.

EXECUTIVE CHAMBER,
STATE OF TENNESSEE.

Nashville, October 20, 1909.

Editor Manufacturers' Record:

Your letter of the 9th inst. came during my absence from the Capitol, and has just been called to my attention.

I have lately called a Good-Roads Convention for Tennessee, and have had referred all resolutions to a Highway Commission, who are charged by law with the duty of devising some plan for highway improvement.

Tennessee already has, in portions of the State, a good-roads system, but there is a strong sentiment demanding a better system, and this I have attempted to crystallize into shape and give it direction, with every prospect of success.

If you care, you may use what I have stated as to the situation in this State.

With kind regards and best wishes, I am,
Very sincerely yours,

Malcolm R. Patterson

Governor.

PEOPLE OF ARKANSAS ARE DEEPLY INTERESTED.

EXECUTIVE CHAMBER,
STATE OF ARKANSAS.

Little Rock, October 13, 1909.

Editor Manufacturers' Record:

The people of Arkansas are deeply interested in the good-roads movement and in the improvement of the public highways of the State. A large part of the counties vote a road tax to build and maintain the highways within their boundaries. The last General Assembly passed an act authorizing the counties to use their convicts on their roads, and several counties are taking advantage of this act.

The people generally believe that good roads will increase and improve sociological conditions, and that they will shorten the distance between neighborhoods and quicken the trips to

trade centers; that they will cause schoolhouses to be erected; will increase the number and attendance at churches; will make the mails come quicker, and advance the value of every farm; they will cheapen transportation rates on many lines of railroad; will quicken and extend communication to the furthestmost points in the interior; will cause more beautiful houses and comfortable barns to be erected, more wealth and a less rate of taxation.

G. W. Donaghy

Governor.

NEW ERA BEGINNING IN WEST VIRGINIA.

Charleston, W. Va., October 19, 1909.

Editor Manufacturers' Record:

The good-roads laws enacted at the last session of our Legislature are proving popular, and this is especially so since Hon. Chas. H. Light, the Commissioner of Public Roads, has gone at his work with so much enthusiasm and intelligence.

Before we can hope to have good roads in this State we must secure new locations. The old roadbeds are in and along streams, or the grades are too steep. In many locations heretofore, County Courts have too often sought the course of least resistance; or, in other words, accepted the right of way that cost the least money, which was nearly always false economy.

I believe that we are at the beginning of a new era in road building, and if our work is continued along the lines of true economy and intelligence, the people of our State will give it proper support.

WM. E. GLASSCOCK,
Governor.

TO PROMOTE AGRICULTURE IN OKLAHOMA.

Guthrie, Okla., October 20, 1909.

Editor Manufacturers' Record:

Oklahoma is interested in improvement of public highways, and expects at an early date to supplement the improvement work already under way in several counties by furnishing prison labor and otherwise to assist the good work. Our policy of government is that our chief source of wealth being agriculture its promoters should be aided and encouraged by the operation of law.

C. N. HASKELL,
Governor.

MISSISSIPPI'S BEST THOUGHT AWAKE TO SITUATION.

Jackson, Miss., October 21, 1909.

Editor Manufacturers' Record:

Interest in improved road building is rapidly growing in Mississippi, the most strictly agricultural State in the Union.

Our soil washes easily. Much of our State is hilly or rolling and sparsely settled. Material for macadamizing or graveling is not generally obtainable with the means available. Consequently, sand, clay and ordinary earth must be chiefly utilized, requiring special skill in grading, draining and other handling.

Our old method of road-working by unskilled overseers and labor chiefly seeking to acquit themselves of the time of service required by law has clearly proved its inefficiency.

The advanced thought of our State is now earnestly seeking the best methods of skilled road-building which our resources and material can provide.

E. F. NOEL,
Governor.

Widespread Movement in the South for Improved Highways

[Written for the Manufacturers' Record.]

Plans contemplating the expenditure of between \$20,000,000 and \$25,000,000 for the permanent improvement of highways in the South and Southwest have been launched during the past 12 months. Some of them have taken form in contracts awarded and work already done; some have resulted in increased direct taxation or in the issue of State, county or township bonds, and others, involving the question of bond issues, are still to be determined by voters.

These plans are a demonstration of the deep and widespread practical interest in a movement that will advantage the South beyond the outcome of any other action that has been taken for its benefit within recent years. So momentous is this movement, so full of definite promise and so bound to expand as details of it become known, that the MANUFACTURERS' RECORD has undertaken a census of Southern good-roads sentiment as embodied in reports from county officials and others in the 14 Southern States and in Oklahoma and Missouri, closely allied to them, interested in the question of highway improvement. The results of our canvass are published in the following 17 pages of local reports covering nearly a million square miles of territory, most of which has only recently begun its real material development.

Such records of county public opinion on this vital subject have never before been made, and an analysis of them is full of interesting and valuable suggestions for good-roads advocates, not only in the South, but in the whole country. They tell of facts accomplished, of projects well under way, of varying sentiments, of aids to the movement and of its impediments. As to definite accomplishments, allusion is made of the use of a portion of the funds available under the \$5,000,000 State bond issue authorized in Maryland and under the Shoemaker law for the reinforcement of county funds; of the co-operation of the State and the counties in Virginia; of the authorization of the use of convicts in Georgia and of like employment of them in Louisiana; of the great progress made under taxation in parts of North Carolina, and of the hearty and liberal support of bond issues in Tennessee, Texas, Alabama and other States.

One, who describes himself as a general roustabout, in stirring up interest in an Alabama county, tells how during the past two years more than 125 miles of roads have been graded, with results so satisfactory that the people of the county are now willing to vote \$120,000 of bonds under certain conditions. The recent vote of \$100,000 of bonds in another county is regarded as evidence of a strong sentiment which will doubtless grow as road building progresses, and the people of a third county in that State, if they alone could decide, would give a large majority for bonds in addition to \$250,000 worth already voted. A fourth county, in which every man wants good roads, has sold \$150,000 of bonds and now has 250 miles of improved highways. Mecklenburg county, North Carolina, has about 200 miles of first-class roads built without the issue of bonds; the farmers are willing to pay for them, and "the only kick is that we cannot build them fast enough for the people." Harris county, Texas, has within 11 months voted two issues of bonds aggregating \$1,000,000, and, with 170 miles of first-class gravel and macadam roads, the people about San Antonio want more roads. Work is under way in Putnam county, Tennessee, under an issue of \$150,000 of bonds, with the privilege of issuing another hundred thousand dollars as soon as 75 per cent. of the present issue has been spent. If the present \$150,000 available in a South Carolina county are judiciously expended, there will be no trouble in voting another \$150,000, and a North Carolina county has been so successful with its first issue that a second will be made.

It should not be imagined that lack of interest in good roads is necessarily implied in indifference to bond issues or to measures for enlarged expenditures through direct taxation. There are still many areas in the South in which folks may be said to have no neighbors. Some counties average less than one person to the square mile. In parts of Oklahoma, for instance, section lines serve for roads in new counties. In newly settled portions of other States fairly good roads are being built as the population increases, and the tendency to use material close at hand, whether oyster shells, trap rock, limestone, gravel, sand and clay, the black soil of Texas needing grading only, or merely common earth, is strikingly illustrated in the policy of a Florida county, where pine needles are put on the roads 8 to 12 inches deep. These soon pack down and make pleasant, easily traveled roads, with no dust, no rattling and no jolting. It is felt, though, that this is but a temporary device, as heavy or constant use would wear them out more rapidly than at present. Many counties already own road machinery, and a number propose to place the work under the supervision of engineers.

The movement is nourished by itself. Obvious advantages of successful improvements impress widely separated communities and are an inspiration to the people

who have made trial of them. Natural caution must be taken into account. A short stretch, proving satisfactory, encourages the building of a few miles each year, and the various degrees of favorable sentiment may be epitomized thus:

Benefits are beginning to be realized simply from observation of 8 or 10 miles completed.

Sentiment changing as discovery is made that good roads may be built without bankrupting the county.

People are becoming convinced that they will never have good roads until modern methods are adopted.

Without improved roads the work must be done over again every year.

Roads are in bad condition and people are awakening to the fact that improved roads are the greatest need and the best thing for farmers and the county.

A slight improvement made possible is likely to arouse to the necessity for greater improvement.

A \$250,000 bond proposition defeated two years ago by a small majority would now carry overwhelmingly.

County is rapidly improving and will soon be in a position to issue bonds.

The county is practically a unit and the people are willing to be taxed.

Officials and people generally are thoroughly alive to the importance of the subject, and all new roads are constructed with a view to making model highways of them.

Willing to be taxed and to have a bond issue so that improvements will be made as speedily as possible.

For building permanent roads instead of wasting money on continuous repairs.

There is a demand for bridges to supplement already good roads.

Interest slowly growing as roads are widened and shaped.

Results of good roads are better citizenship, better school facilities, better church attendance and enhanced value of lands.

County has a good outfit, and since the coming of good roads lands have improved in value, better homes have been built and better farming is done.

Farm lands have advanced 100 per cent. in the past 15 years, and it is getting time that the roads should improve in proportion.

The county is rapidly improving and will soon be in a position to issue bonds.

People are thoroughly awake to the necessity and advantages of permanent roads.

Agitation will bear fruit in the future.

For good roads first, last and all the time.

People are tired of mud.

On every hand are evidences of enthusiasm, intelligent zeal and persistent discussion of the subject generally or of definite propositions for bond issues or other extra provisions for financing the undertakings.

The bond-issue plan is gaining wider and wider popularity, but in many sections old methods prevail, the older the methods the more unsatisfactory the results as a general thing. They include the maintenance of the roads by persons living along them and the liability of all males between 18 and 50 years in some places and 21 and 45 years in others to do a certain number of days' work each year when summoned by county officials and by contract. State convicts or county misdemeanants have been employed in Virginia, North Carolina, South Carolina, Georgia, Florida, Alabama, Louisiana and Oklahoma, one county in Alabama having gained during the past 12 years about 150 miles of first-class roads in this way and a Florida county now keeping in order 140 miles of highways by means of such labor. Adherence to these old methods is traceable largely to the slow growth in the past toward centralization in county affairs and constitutional bars against local bond issues.

Methods of financing the old-fashioned projects vary widely. In portions of Missouri annual incomes from saloon licenses, amounting to as much as \$60,000, are spent for grading and macadamizing and additional thousands of dollars raised by taxation are spent in maintenance. Then there is only the direct-tax levy or local subscription supplementing funds from the State treasury. At stated intervals in Arkansas a proposition for a special levy is submitted to the taxpayers, who generally favor it. In Kentucky the county court sets apart a sum of money to be matched by citizens. So in Alabama; some work is being done that is paid for half by county appropriations and half by the community through which the road passes, and in Louisiana reliance is still had in some parishes upon payments by the police jury.

There is a notable lack of county engineers and much incompetent supervision in all parts of the South, and consequently much of the work is slow and unsatisfactory. In one Virginia county where the system of 40 years ago still maintains the roads are of red clay and are impassable in winter, and an Arkansas county that has spent

\$90,000 in a haphazard way in the past seven years has nothing but dirt dauber roads to show for it.

Still, the old system has worked out well under some conditions. Grades have been reduced, roads have been clayed, iron or steel bridges have replaced wooden ones and sewer drainage has been installed in the low places. One Georgia county is working upon a surplus of cash in its treasury in connection with a special road tax, and another has spent about \$40,000 a year for some years upon sand and clay roads, an amount greater than that spent on all other objects combined. In Kentucky \$25,000 per county a year has been raised through taxation for gradual improvement, and like advance is noted in Maryland, Georgia, Louisiana and other States. Without bonds a West Virginia county has been spending for the past 10 or 12 years from \$800 to \$1200 per mile upon roads built with its own machinery, and, as is said, the work is "paid for every Saturday night."

Obstacles of nature, of finance or of opinion of various kinds are, of course, revealed. Rugged, mountainous country in Kentucky, North Carolina, West Virginia and Missouri, added to the absence of good materials, make first-class road construction too expensive, especially when, as is usually the case, the property in such rough sections has a low assessed value. The drawback, however, is realized by owners of fine timber and mineral lands awaiting the means of transportation, or of productive farm lands in the glades or mountain coves barred from best markets.

Drought in parts of Texas, three crop failures in succession in communities in Missouri and the boll-weevil in Mississippi have delayed bond issues or other provisions.

In a number of counties the tax ability of the people has been temporarily exhausted because of recent expenditures for courthouses, schoolhouses, bridges, the wiping out of other obligations and the steady demands for ordinary county activities. In one county where revenue from dram shops had been used in road building a "dry" vote caused a suspension of work for a couple of years, but now that the local-option law has been declared invalid the benefits of the tax are again becoming manifest. Some folks believe that additional taxation would amount to practical confiscation of their property, and in one North Carolina county the people of the older generation who worked the roads during their day are opposed to paying now a money tax in the same direction.

In one Florida county watercourses and railroads seem to offer sufficient means for travel. In another, where there are many sawmills and turpentine farms, it is felt that it is useless to improve the highways as long as they must be used in the lumbering industry.

Other drawbacks include the absence of systematic agitation, the graft that has been practiced under the old system, jealousies of sections preventing harmonious county action, only enough money for ordinary repair work, necessity to get permission from the Legislature for a bond issue, dissatisfaction at the poor results in comparison with costs, doubt as to the legality of a contemplated bond issue, county commissioners afraid because of political influences to take part in a movement of progressive citizens, the imminence of a political campaign, and, as one expresses it, "the county commissioners have about six inches of moss on their backs, and nothing will be doing until we can get it shaved off."

At points as far removed as Virginia or Kentucky and Texas a feeling against automobiles is in the way. One statement is to the effect that sentiment would be stronger if the persons paying for the building could have assurance that they could use the roads with satisfaction, but that there is a strong opposition against automobile owners taking possession of the highways. Lack of optimism is revealed in the suggestion elsewhere that automobile men, good-roads-machinery men, capitalists, real-estate men and people who pay no taxes are the principals in the agitation. Some accidents that the people do not readily excuse are mentioned as the cause in another quarter for a strong prejudice against automobiles that has hampered the advocates of a large bond issue. Some of the more influential citizens have flatly opposed the issue because they think that automobile interests are pushing it. On the other hand, it is taken as a matter of course that, with automobiles now as thick as flies in the community, sentiment for good roads is increasing. The automobile on pleasure bent or in business use is one of the most important factors for highway improvement. The dramatic features of reliability runs, of pioneering between Beaumont and New Orleans and of scouting trips from Atlanta to New York, from Richmond to Washington or between county-seats and State capitals have been most effective in directing the public mind to the imperfections of roads and to the advantages of making and maintaining the best kind. These benefits should not be allowed to be obscured by the reckless folly of some automobilists who do take possession of public highways to the injury of the mass of automobilists and of all others who have rights of way. The defeat of an intelligent and enthusiastic campaign for a \$250,000 bond issue is the striking lesson to individuals who are among the most interested for good roads.

The bond issue, now a bugbear to many, the comment of one student of the situation being that "some old foggy will think a bond issue will condemn him and his offspring to purgatory," is likely to come, with more open discussion of the question and a demonstration of its advantages compared with other systems of raising money. Opposition to bonds through indifference or through lack of information does not presume opposition to good roads. A few comments gleaned from reports here and there may exemplify one state of mind in the South?

People hereabouts would be glad to have good roads if they didn't cost anything. Most people want good roads, but are not willing to pay the price. Everybody wants good roads, but wants them located on other folks' property. People are anxious for good roads, but do not want to work them. Everybody wants good roads, but nothing doing. Good roads are favored, but taxation for them is opposed. Good roads are advocated, but people are unwilling to pay the price. All talk and no do. Talk, but no bonds. And the sage remark applying to this state of mind is that "sentiment does not build roads."

But there are indisputable facts all along the line from Maryland to Texas in the lowlands, the highlands and the mountain plains proving that public opinion in favor of improved highways and of the best means of getting them is deeply rooted in the Southern mind and is bound to expand in all directions. Too great an impetus has been given the movement for it to be checked. Too many object-lessons have been laid down. The advance in some quarters may be slow, but it will be sure. As one county official says, "We have been riding on the ground slide of conservatism for quite a while, but when we get on the wheel of progress, and are not afraid to go into debt for substantial improvements, then you will hear from us." The wheels of progress are going to give the South a system of the best kind of roads, and the giving will mean a direct influence upon Southern advancement on all lines within the next few years that has not been equaled in its wonderful record of the past quarter of a century.

The census of the hundreds of expressions of local sentiment is condensed in the following letters:

ALABAMA.

BLOUNT.

John F. Kelton, Judge of Probate, Oneonta:

Bonds contemplated? \$120,000.

When for sale? No definite date fixed.

To be built in next 12 months? One hundred miles if bonds are sold.

Approximate cost? \$1000 per mile.

Materials? Chert and limestone.

Sentiment for good roads during the last two years has greatly increased. The people would vote as a unit for \$120,000 bonds, that being 3½ per cent. of taxable property, the constitutional limit, if they were assured that the State and nation would augment that fund by sufficient aid to give them a system of good roads throughout the county. Two years ago, under the supervision of the writer, the county began to break loose from the old system of statute labor, etc., and with our limited means we have graded over 125 miles of road and put chert on about seven miles, the chert being placed on the streaks of lime mud which the roads pass through. This initial improvement has awakened a great interest in the good-roads question, and Blount county will ere long be able to boast of the best system of roads of any county of its wealth in the South.

The writer, as chairman of the Board of County Commissioners, has acted as County Engineer and general roustabout in procuring this condition.

BULLOCK.

Jas. F. Flewellen, Clerk of Court, Union Springs:

Bonds issued? \$100,000.

Sold? Yes.

New bonds contemplated? Not just now.

To be built in next 12 months? About 75 or 100 miles.

Approximate cost? \$100,000.

Materials? Clay and gravel.

Our county is decidedly in favor of building good roads, as was evidenced by vote last year. This sentiment will doubtless grow as the building of good roads progresses.

CHAMBERS.

A. J. Driver, Jr., Lafayette:

Every one wants good roads, but can't agree on a plan to raise the money. They have not been educated up to the bond-issue question.

CONECUH.

S. L. Tisdale, Evergreen:

Bonds issued? \$25,000.

Sold? Yes.

New bonds contemplated? Yes; \$25,000. When for sale? During the next six months.

To be built in next 12 months? Forty or 50 miles.

Approximate cost? \$20,000 to \$25,000. Materials? Sand and clay.

A majority favor it.

B. B. Finkler, Civil Engineer, Evergreen:

Our roads work is being done by our own forces; we have 50 mules and modern equipment for doing the work. We are constructing only earth roads. Good clay is available in most instances. We still have \$50,000 available funds, and expect to issue more bonds.

ESCAMBIA.

M. F. Brooks, Judge of Probate, Brewton:

We have adopted no new plans for construction of roads in this county. The roads for the present will be constructed and worked under the general laws of the State and a special road law of the county.

ETOWAH.

J. W. Penn, Judge of Probate, Gadsden: To be built in next 12 months? Fifteen to 20 miles.

Approximate cost? \$20,000.

Materials? Slag and chert.

The sentiment in this county is strongly in favor of good roads. We have been working our convicts upon the roads for 12 years, and have 125 to 150 miles of first-class roads. We build with them from 12 to 20 miles per year.

GENEVA.

J. W. Draughon, Geneva:

At a recent election the good roads lost by 400 votes, and there will not be another election held in about two years.

HOUSTON.

W. A. Brown, Clerk, Dothan:

To be built in next 12 months? Sixty miles.

Approximate cost? \$18,000.

Materials? Sand and clay.

In favor.

JACKSON.

J. M. Swain, Clerk County Court, Scottsboro:

The sentiment on building good roads in this county is very great. If the proposition were left to the people for the issuing of bonds for the purpose of build-

ing pike roads, it would carry by a very large majority. We now have a bonded indebtedness for this purpose of \$250,000. This money was spent five or six years ago. We now have about 100 miles or more of pike roads in the county, and the people know how to appreciate them. The county is now building from two or three to five miles of pike each year by direct appropriations of money from the county treasury, one-half being supplemented by the community through which the road runs.

MACON.

W. A. Cloud, Tuskegee:
New bonds contemplated? I think not; that is, the matter has not been up in this county.

There is a growing desire for better roads. By an act of the last Legislature the road laws for this county were amended. I do not know whether or not the law will be effective in bringing about better roads. The people are looking forward for some scheme to improve the roads.

MARSHALL.

J. H. Carter, Guntersville:
New bonds contemplated? Marshall county has never sold any bonds. Do not contemplate issuing bonds.

The sentiment in portions of our county where the roads are is very much in favor of good roads, but a great majority of our roads are on the mountains, and are very good average roads. Our people as a whole are not very enthused over good roads, and we are behind some of our adjoining counties. My people would be glad to have good roads if they didn't cost anything.

MOBILE.

Geo. E. Stone, County Treasurer, Mobile:

New bonds contemplated? Contemplate calling an election to vote on the proposition of a bond issue for road purposes.

To be built in next 12 months? Probably 10 or 15 miles of highway, and 150 opened up, graded and straightened.

Approximate cost? About \$50,000.

Materials? On the highways, chert, gravel and shell.

Our commissioners are doing all they can for good roads, and out of the general fund expend annually about \$45,000 or \$50,000 on roads. We cannot issue bonds without first putting the question to a vote of the people, and this will probably be done during 1910.

MONROE.

John M. Coxwell, Monroeville:
Bonds issued? \$100,000.
When for sale? Within next 18 months.
To be built in next 12 months? Fifteen or 20 miles.
Approximate cost? About \$500 per mile.

Materials? Gravel and clay.
There is a strong and increasing sentiment in this county in favor of good roads. It is a question that is being very much agitated and encouraged, and results are timely expected.

MORGAN.

Jas. S. Fowler, New Decatur:
Bonds issued? \$250,000.
Sold? Yes.
To be built in next 12 months? Fifty-seven and one-half miles been contracted; want to build more if we can.
Materials? Limestone.
It is the universal opinion of the people of our county to have good roads.

PIKE.

A. C. Edmonson, Tray:
Bonds issued? \$15,000.
Sold? Yes.
Money expended? Being expended.
To be built in next 12 months? We have built 215 miles of good roads.
Approximate cost? \$650 to \$700 per mile.

Materials? Sand and gravel.
Every man in the county wants good roads. We have sold \$165,000 worth of bonds and have built 215 miles of good roads. We are working 54 head of mules, repairing and building good roads, but will sell 24 head of mules (two road squads). On the 15th we will reduce our road squads to two.

SHELBY.

John R. Dyke, Clerk Circuit Court, Columbiana:

Bonds issued? No bonds have ever been issued.

New bonds contemplated? There is some talk of issuing bonds to build roads, but they will have to be voted by the people.

When for sale? I do not know.

ARKANSAS.**BAXTER.**

W. F. Eatman, County Clerk, Mountain Home:

Bonds issued? None; a levy of three mills on the property of the county.

Bonds contemplated? Three mills will be levied in October, 1909.

To be built in next 12 months? Twelve to 25 miles.

Materials? Stone and gravel.
Sentiment generally in favor of good roads.

BRADLEY.

J. A. Watkins, County Clerk, Warren:
We have two and one-half mills tax levy on all real and personal property in the county, from which source funds are annually raised for road-building.

CALHOUN.

L. B. Dilworth, Hampton:
We issue no bonds. Roads are worked by taxation and free labor. We pay about \$7000 per year for road purposes.

CARROLL.

E. M. Bare, Eureka Springs:
To be built in next 12 months? Fifty miles.

Approximate cost? \$3000.

Materials? Crushed stone and gravel.
In all parts of our county we have a deposit of fine gravel that makes excellent roadbed, and it is unnecessary to use much else for the construction of roads. Our county issues no bonds, but pays the money from direct taxation directly through the County Judge. There is a great deal of interest being manifested with reference to good roads in this county.

J. E. Gregson, Berryville:
We have a special three-mill road tax and township overseers elected at general election. Sentiment is in favor of good roads.

CLARK.

John W. Allen, County Clerk, Arkadelphia:

To be built in next 12 months? Thirty miles.

Approximate cost? \$60,000.

Material? Gravel.
We are building roads with a special road tax collected as other county taxes, and rapidly making good roads in the county.

To be built in next 12 months? None; unless we issue bonds.

I do not think there will be anything done toward the building of roads in this county next year as it is election year, and they won't be likely to do much until after the election.

SUMTER.

P. B. Jannan, Livingston:
Bonds issued? None in the last 12 months; \$120,000 issued 10 years ago.

Sold? Yes.
To be built in next 12 months. Probably 8 or 10 miles.

Approximate cost? \$25 per mile.

Materials? Lime, rock and sand.

The sentiment in favor of building good roads is very strong, and we have done and are doing some excellent work.

W. H. Pickens, Clerk Circuit Court, Livingston:

This county does not anticipate the issue of any bonds for good-roads purposes. Several years ago there was an issue of \$120,000, which has been expended, and now the county, through its commissioners, is doing the work.

CLAY.

O. R. Winton, Piggott:
Bonds contemplated? Cannot under law.

To be built in next 12 months? None; that is to say, modern roads.

Material? Dirt.

Sentiment favorable, but county not sufficiently settled to bear expense of modern road building.

CRAWFORD.

W. V. Bontright, Van Buren:
We have been collecting a three-mill road tax for the last seven years—an aggregate of \$90,000—which has been spent in a haphazard way; consequently, we have nothing but dirt-dauber roads.

FRANKLIN.

J. R. Crocker, County Clerk, Ozark:
The sentiment in our county is good in favor of good roads.

FAULKNER.

J. H. Bailey, County Clerk, Conway:
To be built in next 12 months? Building dirt roads all year.

Materials? Mud and dust.

Our county does not issue road bonds. A three-mill road tax only brings in about \$9000 in the county, which has to be divided among 22 districts.

INDEPENDENCE.

Albert Sims, Batesville:
To be built in next 12 months? Very little.

Approximate cost? Don't know.

Materials? Don't know.

Her citizens vote a three-and-one-half mill tax for road building yearly, which yields about \$20,000 per annum. This is spent under supervision of County Judge. The road overseers direct the work in each township. Our system is not a good one, because the work is not done under competent directions. No engineers to lay out the work.

LAFAYETTE.

C. C. DuBose, Lewisville:
We are working our roads under the supervision of the County Judge, W. C. Calvin, Lewisville, Ark., and use only the funds collected each year by a three-mill property tax.

LAURENCE.

C. S. Henderson, Powhatan:
Materials? Dirt and rock.

Each township builds its own road with the special road tax voted each year. Every one seems to be heartily in favor of good roads.

MONROE.

W. L. Hinton, Clarendon:
We work the roads with free labor, and levy a three-mill tax, which brings about \$13,000 per year. This is used to build dirt roads.

MONTGOMERY.

G. H. Speer, Jr., Mount Ida:
We are all anxious to secure good roads, but our taxes are too small yet to make a move along this line.

PRAIRIE.

R. J. Hodges, Clerk, Des Arc:
Prairie county will spend \$12,000 on dirt roads this year.

RANDOLPH.

M. R. Armstrong, County Clerk, Pochontas:

Bonds issued? No bonds. We levy a three-mill tax, which aggregates about \$8000 annually, which is spent on the roads.

Bonds contemplated? Not in near future.

When for sale? Will depend altogether on future developments.

To be built in next 12 months? All public roads are worked in proportion to amount of tax collected in each respective district.

Approximate cost? We expend approximately \$8000 yearly.

Materials? Rock, gravel and clay-dirt.

Has been generally discussed, but the laws of our county will not permit of bond issue, hence it is a very slow and unsatisfactory method under our present system.

ST. FRANCIS.

T. C. Merwin, Forrest City:
Bonds issued? None; we vote a three-mill tax.

Bonds contemplated? Nothing but tax.

To be built in next 12 months? Our county is divided into 19 districts, and we have about \$15,000 per annum to be used on the roads, exclusive of the four days labor required by all persons from 21 to 45 years old.

Materials? We have no material, except in a few localities. Some gravel.

Our people need better roads, and are anxious that improved methods be used.

SALINE.

Geo. W. Cole, Benton:
The county is improving the roads as fast as it can.

SEBASTIAN.

J. C. Williamson, Greenwood:
Sentiment in this county is for good roads, but no bonds issued.

SHARP.

Arthur Sullivan, County Clerk, Evening Shade:

Bonds contemplated? No bonds; road tax levied.

To be built in next 12 months? All roads are worked.

Approximate cost? \$5000 or \$6000.

The people are becoming interested in the good-roads movement.

UNION.

T. W. Williams, El Dorado:
None likely to be built at any time soon.

WHITE.

J. F. Headlee, Searcy:
The sentiment in favor of good roads is increasing in this county, and I look for

much change for the better in that line within the near future. We have adhered for many years to the old system of building and maintaining our public roads by a combination of free labor and direct taxation, but the people are becoming convinced that they will never have really good roads until they adopt a different plan.

WOODRUFF.

Ed B. Call Lee, Augusta:

All favor good roads. We have a road tax, and it is put on roads every year.

FLORIDA.

BAKER.

T. C. Carroll, Macclenny:

Materials? Common soil.

Sentiment is divided. I think the good-road movement is gaining ground here. I do not think this county will issue bonds in the near future, as the majority of the citizens are opposed to bonds. I, for one, am in favor of good roads, and hope that the time is not far distant when we can have good roads.

BRADFORD.

W. S. Weeks, Starke:

To be built in next 12 months? Only repairing.

Approximate cost? \$7000 to \$10,000.

Materials? Sand and straw, and probably clay.

The county generally is very favorable to building good roads.

CALHOUN.

J. M. Atkins, Blountstown:

The roads are kept up by the citizens of the county. We haven't got any road fund in this county except bridge funds.

CITRUS.

Walter F. Warnock, Secretary to Board of County Commissioners, Inverness:

To be built in next 12 months? About 18 miles.

Approximate cost? About \$1200 per mile.

Materials? Rock.

Sentiment largely in favor of hard roads. Board of County Commissioners levied seven-mill general road tax and the people voted on an additional five mills in district. Also we have a special act of the Legislature enabling us to use the money derived from hire of county convicts on the hard road. Working on this plan of direct heavy taxation we have built about 40 miles of roads in the last three years. Have now just purchased 10-ton motor road roller, crusher, screen and elevator, and hope to have a better road at less cost.

The plan of the board for constructing hard roads in this county is to build them. We have teams, millions of tons of rock, have bought graders, crusher, screen, elevator and roller, and with all this we just build roads. We have made some mistakes, of course, but experience is the best teacher. We first built a red-clay road; that was not good, so we are going over them now putting on a coat of rock, and they are as good as you will find anywhere. Our annual revenue for roads will average only about \$15,000, but when you know that we build a first-class rock road for not over \$1000 per mile, you can see that that is sufficient. We have now about 40 miles of hard surfaced roads, some of it fine, other built of clay on which as above stated, we are putting a facing of rock. The money is raised by direct taxation and from lease of county convicts. The board expects to use the convict labor on the roads next year.

WASHINGTON.

Ben F. Greer, County Judge, Fayetteville:

We will not probably attempt to build any macadam roads the next year.

YELL.

W. C. Hunt, Dardanelle:

Materials? Dirt and gravel.

We don't issue bonds; we levy a three-mill tax, which is collected as other taxes and distributed among the road districts. It is submitted to a vote of the taxpayers every two years as to whether this tax shall be levied, and generally they are in favor of it.

CLAY.

The county as a whole wants good roads, but they are not willing to bond the county to get them. Commissioners of district 1 are to hold election for the purpose of creating a sub-road tax district. Election is to be held October 27, 1909.

DADE.

W. E. Norton, deputy clerk Circuit Court, Miami:

To be built in next 12 months? Probably 10 or 12 miles.

Approximate cost? About \$3000 per mile.

Material? Native stone.

The sentiment of the public generally is in favor of building good roads. We have already over 200 miles, which is worked by the county prisoners.

DUVAL.

P. D. Cassidey, Jacksonville:

Bonds contemplated? Yes, but cannot say when.

To be built in next 12 months? As many as funds will permit.

Materials? Brick and possibly other hard material.

Sentiment very favorable.

FRANKLIN.

R. H. Porter, Apalachicola:

Travel and communication in this county almost entirely by water or railroad.

GADSDEN.

A. S. Wilson, Quincy:

To be built in next 12 months? 50 miles. Approximate cost? \$200 to \$300 per mile.

Materials? Clay and sand.

Sentiment is favorable.

HOLMES.

W. H. Brett, Jr., Clerk Circuit Court, Bonifay:

We are not building any hard-surfaced roads nor making any preparations for it, I am sorry to say.

JACKSON.

W. A. McRae, Clerk Circuit Court, Marianna:

Nothing doing for good roads in this section of the State.

JEFFERSON.

R. C. Parkhill, Clerk County Court, Monticello:

Only one-half mill tax for roads and bridges.

LAKE.

H. H. Duncan, Tavares:

To be built in next 12 months? Not over five miles of new road.

Approximate cost? \$600 for clay and \$25 to \$50 for straw.

Materials? Clay for some and straw for others.

We favor good roads; favor bonding, but jealousy of the sections has prevented

an agreement on plan for expenditures. The pine needles are used for the straw roads. They are put on 8 to 12 inches deep and soon pack down. They are easily traveled, and make pleasant roads; no dust, no rattling, no jolting. They should be renewed every six months, and very heavy or constant use would wear them out sooner. They are ideal roads for thinly-settled country.

LEVY.

A. P. Hardee, Clerk Circuit Court, Bronson:

To be built in next 12 months? Doubtless none.

Approximate cost? They could be built at \$1000 per mile.

Materials? Clay, lime, rock, phosphate, gravel and oyster shells accessible.

The question of good roads is becoming a matter of more interest, judging from what people talk and to the extent that we have special road law providing for creating a road district (special), and doubtless portions of the county will take advantage of this opportunity. I am very much interested in this direction myself, but sorry to say we are still working under the old plan.

LEE.

S. C. Headley, Deputy Clerk Circuit Court, Fort Myers:

The country people are in favor of bonding for good roads.

PALM BEACH.

Fred E. Fenno, Clerk, West Palm Beach:

If the bond election to be held October 19, 1909, carries in favor of bonding the county, the entire amount of \$200,000 will be available for expenditure on county roads through the county, \$110,000 to be expended on main road from West Palm Beach to Stuart, including a bridge across the Loxahatchee River at Jupiter; the balance, or \$90,000, to be expended on lateral roads from the various towns in the county; the character of the paving to be either Miami or Dade county rock all the way, or part rock and part oyster shell, this to be determined by the commissioners later. As to the date for opening the bids for constructing roads, bridges, etc., all this will be determined later, as well also as the plans, etc., upon which the road will be built.

PASCO.

A. J. Burnside, Clerk County Court, Dade City:

BANKS.

C. A. Meeks, Homer:

Bonds contemplated? Not at present. To be built in next 12 months? Thirty miles.

Approximate cost? \$400.

Material? Soil.

Sentiment good. Working 16 convicts. No civil engineer, but work done by the ordinary.

BARTOW.

W. C. Walton, Cartersville:

Bonds contemplated? Being talked about.

Sentiment strong.

BEN HILL.

D. W. M. Whittey, Fitzgerald:

Bonds issued? \$10,000 now being expended.

Sold? Yes.

To be built in next 12 months? One hundred miles.

Approximate cost? \$650 per month.

Materials? Clay the roads, and use road machines.

To be built in next 12 months? Don't know. We have just started on a trial piece.

Material? Clay.

If the trial piece is satisfactory we will build a few miles each year.

SANTA ROSA.

H. W. Thompson, Milton:

Bonds contemplated? Yes, \$100,000.

When for sale? 1910.

To be built in next 12 months? Thirty miles.

Approximate cost? \$60,000.

Materials? Sand, clay and gravel.

Very enthusiastic just now, and sentiment strongly in favor of good roads and the issuance of bonds.

SUMTER.

Gonce Nelson, Sumterville:

To be built in next 12 months? Four to six miles.

Approximate cost? \$700 per mile.

Materials? Lime, marl or clay or sand.

We most heartily favor good roads, but are going along slowly. Need more public spirit and money.

TAYLOR.

John C. Calhoun, Perry:

Bonds contemplated? Only being talked of.

To be built in next 12 months? No hard roads.

Approximate cost? Don't know.

Nothing has been done in Taylor county toward building good roads, and they are yet worked in the old way by the citizens, each working so many days each year. The county is full of timber, sawmills and turpentine farms, and some of our people think it useless to build hard roads until the timber carts go out. However, I don't see it in that light, and have been talking the matter of good roads and bonds to the farmers of the county, and find a sentiment in favor of bonds is growing, and I believe it can be carried soon.

VOLUSIA.

Samuel D. Jordan, De Land:

Materials? Shell, marl and clay.

Sentiment is strong for good roads. We now have the best roads in the State.

WAKULLA.

H. N. Walker, Clerk County Court, Crawfordville.

County sentiment is evenly divided, but on account of the small amount of taxable property in the county there is not likely to be any road building for some time.

GEORGIA.

This county is very enthusiastic about good roads, and is working to that end.

BERRIEN.

L. C. Turner, Nashville:

To be built in next 12 months? Ten miles.

Approximate cost? \$500 a mile.

BURKE.

W. M. Fulcher, Waynesboro:

To be built in next 12 months? Twenty-five miles.

Approximate cost? Being built by county court estimate.

Materials? Clay and sand.

CAMPBELL.

W. S. McLarin, Fairburn:

To be built in next 12 months? Very uncertain.

Materials? Don't know.

We favor good roads.

CARROLL.

D. F. Pearce, Clerk Superior Court, Carrollton:

Bonds contemplated? Some talk of it. To be built in next 12 months? About 10 miles.

Approximate cost? \$2000.

Material? Rock.

The sentiment is growing fast. We have built about three miles of macadamized road, and everybody seems delighted with it.

CHARLTON.

Jesse W. Vickery, Folkston:

To be built in next 12 months? Twelve to 15 miles.

Approximate cost? \$300 per mile.

Materials? Soil and clay.

Our county has recently organized a chain gang, and is working convicts on the public roads. We have about 16 miles of good road now built and expect to continue until all of the roads of the county are in first-class condition. We may in the near future issue bonds for road purposes, but at present we are working with a surplus and by a special road tax.

CLARKE.

John B. Gamble, Athens:

Clarke county has issued \$100,000 for the improvement of her highways. This issue has been practically used in constructing macadam and sand-clay roads. After a careful comparison between macadam and sand-clay road we have been convinced that the sand-clay is by far more satisfactory to the general public, and considerably less expensive.

CLAY.

C. N. Bateman, Deputy Clerk Superior Court, Fort Gaines:

Bonds contemplated? Yes; can't say when or for how much. Probably \$100,000.

To be built in next 12 months? Three hundred miles.

Approximate cost? \$1000 per mile.

Material? Probably macadam.

This county is keeping abreast of the general roads movement in the Southern States. They have not yet found it expedient to issue bonds. Work is being kept up by direct taxation.

CLINCH.

A. J. Gibbs, Clerk Superior Court, Homerville:

To be built in next 12 months? Fifty miles.

Approximate cost? \$3000.

Materials? Clay and sand.

Sentiment at present against it, but as they find that good roads can be built without bankrupting the county, they are gradually falling into line.

COFFEE.

J. A. Overman, Clerk Superior Court, Douglas:

To be built in next 12 months? Fifty miles.

Materials? Clay and sand, mainly.

Sentiment in this county is growing in favor of the good-roads movement. The County Commissioners have all the misdemeanor convicts—30, and this county's share of the convicts and 15 miles now on the roads. They have built and rebuilt 25 miles of county road during past six months. We have no county engineer at present.

COLQUITT.

A. B. Buxton, Moultrie:

To be built in next 12 months? Unable to state.

Approximate cost? Cannot state.

Materials? Mostly clay.

This county is new in road building. Have been working convicts only 3 years. Prior to that time work done by citizens of county under general road law of State.

Roads in fairly good condition. Lots yet to be done.

COWETA.

R. O. Jones, Newnan:

To be built in next 12 months? Fifteen to twenty miles.

Approximate cost? \$25,000.

Materials? Sand and clay.

This county spends more on roads than for all other purposes combined. We work a chain gang and have for five or six years, and are now doing mostly grading, and are only using materials at hand, such as clay and sand. We spend about \$10,000 in building and working roads annually, and the entire county is practically a unit in favor of good roads, and the people are willing to be taxed for them. The general sentiment is, however, not favorable to bonds, as people prefer an annual tax and to do the work as the money is raised.

CRISP.

J. A. Littlejohn, Clerk Superior Court, Cordele:

To be built in next 12 months? One hundred to 150 miles.

Approximate cost? \$35 to \$50 per mile.

Material? Clay.

Sentiment for good roads by large majority. Work done on roads by convicts.

DOOLY.

J. Frank Powell, Vienna:

To be built in next 12 months? Seventy-five to 100 miles.

Approximate cost? About \$200 per mile.

Material? Our soil only.

Majority of people want good roads.

DOUGHERTY.

N. F. Tift, Albany:

Bonds issued? \$30,000—about two years ago.

Sold? Yes.

Bonds to be issued? Not in near future. To be built in next 12 months? Our roads are all good.

Approximate cost? Clay and sand, \$300; rock, \$1000.

Materials? Clay and sand.

We have used convicts on our roads for past 12 years, and have good roads all over the county. Still, the cry is for better roads, and we are giving them. Have lately built about 10 miles of macadam from crushed lime rock; are using improved machinery and will soon have the best system of roads in our section.

EMAUUEL.

W. M. Rountree, Swainsboro:

Bonds contemplated? Has only been discussed.

To be built in next 12 months? All the convicts can build—about 20 miles.

Materials? Clay and sand.

This county is now using and, so far as I know, will continue to use the convicts on the roads, supported by road tax and ad valorem tax. They are building clay roads, and although this is the first year the work has been started, the roads made are giving satisfaction. They make only about two miles a month, using about 45 convicts. We have no regular engineer, the commissioners themselves directing the work.

R. A. Flanders, Clerk Road and Revenue Commissioners, Swainsboro:

To be built in next 12 months? One hundred miles.

Approximate cost? \$2000.

Materials? Clay and sand.

We have been building clay roads since April, 1909, and have built 25 miles. We have levied \$2000 for road purposes for the year 1910.

FANNIN.

J. R. Kincaid, Blue Ridge:

Bonds contemplated? It is thought the county will.

When for sale? Next year, if voted.

To be built in next 12 months? Not more than 20 miles.

Approximate cost? \$2500 to \$3000.

Material? I do not know.

I can't tell just now what the general sentiment is, but we hope next year to commence building and build slowly until we have constructed many miles of good roads.

FORSYTH.

E. E. Brannon, Clerk, Cumming:

I am sorry to say we have no such thing as good roads, and are not likely to have during this generation.

GLASCOCK.

Thomas A. Walden, Gibson:

To be built in next 12 months? Ten miles.

Approximate cost? \$200 per mile.

Materials? Clay and sand.

HANCOCK.

W. E. Wiley, Sparta:

Bonds contemplated? I do not think so; not for the present, anyway.

To be built in next 12 months? I do not exactly know how to answer this question, as we are not at present building any permanent roads yet.

Materials? Clay on sand and sand or gravel on clay.

There is a growing interest in building better and permanent roads in our county. It seems to me it grows too slow. As I said before, we are not building any permanent roads, but we are putting our roads in very much better condition by grading, widening and shaping them. We have no engineer; only a superintendent.

HART.

J. W. Baker, Hartwell:

Bonds contemplated? Yes; some \$15,000 for roads and bridges.

When for sale? 1910.

To be built in next 12 months? Forty or 50 miles.

Approximate cost? Probably \$5000, in addition to convict labor, which is practically over.

Country people have just "waked up" as to the value of good roads. Fifteen miles of good roads have been built since Christmas. County commissioner and ordinary are very enthusiastic, and are doing all in their power to put the roads in good condition.

HENRY.

J. A. Fouche, McDonough:

Our county is somewhat slow, and general sentiment is opposed to anything increasing taxes.

HOUSTON.

C. H. Hardison, Clerk Superior Court, Perry:

Approximate cost? About \$500 a mile.

Materials? Clay and sand.

There is a sentiment among all the people of the county demanding good roads, and the county authorities are building the roads as fast as practicable. Roads are worked by convicts.

JACKSON.

Sydney J. Nix, Jefferson:

Bonds contemplated? Matter being discussed, but no action.

When for sale? Matter yet unsettled.

To be built in next 12 months? Twenty-five miles of road improved to first-class, and perhaps 30 miles carefully worked over.

Approximate cost? \$10,000 to \$15,000.

Materials? Dirt and gravel.

The sentiment for good roads is stronger than ever before, and it is only a question of a few months, as I believe a large bond issue will be made and Jackson county roads be made better by permanent work on the roads. Much work has already been done, but the work is such that the roads need constant repairs, because the labor and material are not such to build permanent high-class roads. The people are beginning to realize what this annual expenditure is with the same poor roads each year after the winter has passed.

JEFF DAVIS.

A. J. Herrington, Hazlehurst:

Our county is not using the convicts on our roads, but we have a growing sentiment in that direction, and it is hoped that we will, at an early date, begin to build good roads.

JEFFERSON.

James F. Brown, Louisville:

To be built in next 12 months? The work now being done on public roads is rebuilding and improving old ones.

Approximate cost? Now expending about \$25,000 annually.

Materials? Sand and clay.

The county is a unit on the question of good roads and realizes fully the immense advantage that good roads give to the county possessing them; but there is a growing feeling of dissatisfaction at the cost of the work and the results obtained. In this county the whole business is managed by a board of five commissioners, who are elected by the people and without any regard to their qualifications as road builders. These commissioners in turn take charge of the road force and direct according to their ideas. No superintendent, no engineer.

LEE.

James Morgan, Clerk County Commissioners, Leesburg:

Bonds contemplated? None in the near future.

To be built in next 12 months? About 35 or 40 miles of good dirt road of sand and clay.

Approximate cost? About \$200 per mile.

Material? Dirt.

Sentiment is in favor of the best roads, but funds are lacking at present. Taxes already are a little heavy.

MACON.

C. A. Powell, Clerk Superior and City Courts, Oglethorpe:

To be built in next 12 months? Ought to be about 50 miles.

Materials? Dirt, clay and sand.

Most or quite a good many of our people are opposed to good roads on account of the extreme and burdensome cost, thereby increasing rate of taxation. We are working about 40 convicts all the while and should build many miles of good road, as our county is practically level.

McDUFFIE.

W. F. Gheesling, Ordinary, Thomson:

To be built in next 12 months? Two hundred miles.

Materials? Sand and clay.

Universal sentiment in favor of good roads.

MARION.

Chas. W. Lowe, Clerk County Commissioners, Buena Vista:

To be built in next 12 months? Fifty to 75 miles.

Approximate cost? \$50 to \$100 per mile.

Materials? Clay and sand.

MILTON.

J. B. Paris, Alpharetta:

A large per cent. of the citizens want good roads, but it will be several years before we issue bonds or make any extra effort to have them. We work by machines and pay by taxation.

MUSCOGEE.

Wm. Redd, Jr., Ordinary and Clerk, Commissioners' Court, Columbus:

Bonds issued? None; money on hand.

Bonds contemplated? No; we pay all bills monthly, and have surplus to carry us until December next. Then we will get our 1909 taxes.

To be built in next 12 months? As many miles as a well-organized camp of convicts (100 in number), latest machinery, 46 mules, etc., can build.

Approximate cost? County will spend \$40,000 in the next 12 months in building good roads.

Materials? Macadam, clay, sand and gravel.

General sentiment in favor of good roads.

NEWTON.

J. H. Echols, Covington:

Bonds to be issued? \$100,000.

When for sale? Not before 1910.

To be built in next 12 months? Small amount.

Some few citizens have organized a good-roads club, and are working to carry the bond election. We are now grading some of the steepest hills.

PULASKI.

T. J. Holder, Hawkinsville:

To be built in next 12 months? Two or three hundred miles.

Materials? Clay and soil.

Everyone is in favor of good roads.

RABUN.

F. D. Singleton, Clerk Superior Court, Clayton:

To be built in next 12 months? Could not say; nothing under construction just now.

The people are taking some interest in the movement for good roads. The Grand Jury recommended the alternative system at their August term of the Superior Court, which has been adopted by the county.

RANDOLPH.

C. Taylor, Clerk County Commissioners, Cuthbert:

Our county is grading the roads with machinery—graders, wheelers, plows, picks and shovels, etc.—and using from 36 to 42 State and county convicts on the road work. We are pulling down hills and claying sand roads, making some very nice roads, putting in the low places, bottoms, etc., sewer drainage. We use 27 mules. We have been doing some of this kind of road work for eight or nine years. We have not issued any bonds for this or any other purpose. We have no county bonds out at all. Our State tax is five mills, our county tax five mills and our school tax two mills. Our commutation road tax is \$3 for all men of road age. This is used also in road work. We are still using wooden bridges and cannot buy steel ones until we have more funds.

We greatly appreciate your interest and efforts for the great South and the upbuilding of its various enterprises.

SCHLEY.

E. B. Barrow, Ellaville:

Bonds contemplated? About \$25,000.

When for sale? Next spring—1910.

To be built in next 12 months? I guess about 30 miles, with good-roads machinery.

Approximate cost? About \$500 per mile.

We have a chain gang on now. Some are for good roads and some are against it.

STEPHENS.

B. B. Brown, Jr., Toccoa:

To be built in next 12 months? About 60 miles.

Approximate cost? From \$300 to \$500 per mile.

Materials? Clay, sand and top soil.

The majority of the people are in favor of good roads.

STEWART.

J. E. Carter, Clerk Superior Court, Lumpkin:

Bonds to be issued? Some agitation of issuing \$50,000, but it is yet in the future.

When for sale? Can't say; none issued as yet.

To be built in next 12 months? We have about 600 miles of road to be built and repaired, but we are progressing very slowly.

Approximate cost? Can't approximate it, but will be large—a great deal.

Materials? Clay and sand principally; some lumber and some steel bridges.

Sentiment is strong in favor of good roads, yet our people want to see some roads built and note the success of some before voting bonds.

SUMTER.

R. G. Christian, Superintendent of Construction, Americus:

Bonds contemplated? The question of bonds is under consideration; as yet no election called.

To be built in next 12 months? Expect to grade 50 miles.

Approximate cost? \$800 per mile.

Materials? Natural soil, sand and clay.

Sentiment in favor of good roads is growing. Considerable interest is manifested now. Work at present confined to reducing heavy grades and constructing permanent bridges.

TAYLOR.

O. T. Montford, Butler:

Most of the people want good roads, but they don't want to be taxed to build them. The county has spent in the last two or three years about \$15,000 on the roads, using clay and sand. It is quite the "idea." We are not using our convicts, but I am confident they will be compelled to do so under the recent law requiring all convicts to be worked on the public roads.

TELFAR.

J. W. Cameron, McRae:

Money expended? \$800 per month.

To be built in next 12 months? Forty or 50 miles.

Approximate cost? \$7000.

Material? Clay.

We are working our convicts in Telfair. They make good roads, claying all roads.

TERRELL.

W. S. Dozier, Clerk Superior Court, Dawson:

Materials? Clay, sand and stone.

Terrell county works on an average 60 convicts, divided into two squads, one squad doing general road work, such as running scrapes, ditching, leveling up, etc., while the other squad is grading; that is, cutting down hills, widening and straightening old road beds, filling in, etc. We have good roads all over the county. We have been working convicts a good many years on our roads. Can't say just how many miles of good roads will be built in our county in the next 12 months, or what will be the approximate cost. The work on our roads cost us about \$20,000 per

year. Quite a good many miles of our leading roads have been graded and put in good condition; 30 feet wide. Our people are enthused over good roads, and we think now that our roads will average with any county in the State. We are progressive in the road business, and all our roads will soon be first-class. We are doing away with wooden bridges and substituting iron bridges.

THOMAS.

J. W. Groover, Thomasville:

Bonds to be issued? None; have plenty of money.

TIFT.

Henry D. Webb, Tifton:

Our roads are being worked by all misdemeanor convicts convicted in this county.

TOWNS.

John M. Johnson, Hiawassee:

Bonds contemplated? Bonds are being talked.

To be built in next 12 months? Some 15 or 20 miles under contemplation.

Approximate cost? \$50,000.

Materials? Rock and dirt.

County sentiment strong.

TROUP.

W. L. Cleaveland, Clerk Superior Court, Lagrange:

Bonds to be issued? Think will issue bonds later, but now now.

When for sale? Possibly one year or more.

To be built in next 12 months? I think about 20 miles.

Approximate cost? Do not know.

Material? Dirt; grading.

Our county is awake to the proposition of good roads, and all seem willing to be taxed, to have bond issue that the work may be done with as much rapidity as possible. I feel and know the county will be greatly benefited, the price of lands increased, the country more densely settled and present homes made more beautiful and value much enhanced. I enjoy the MANUFACTURERS' RECORD very much.

TWIGGS.

A. F. Martin, Jeffersonville:

We have a chain gang in our county

KENTUCKY.**ADAIR.**

T. R. Stults, Columbia:

To be built in next 12 months? Seven miles.

Approximate cost? \$1000 per mile.

Materials? Crushed stone and gravel.

There seems to be considerable interest in road building. During next year the road above referred to will, in my opinion, be built to connect with a road from Greensburg to this place, which is almost completed to the county line. Our county clerk will take \$5000 stock in the road, and the remainder will be subscribed by parties along the route.

ALLEN.

W. H. Justice, Scottsville:

Bonds issued? About \$5000 by county and private subscription.

Bonds contemplated? Fiscal Court appropriates \$500 every time citizens put up that much; total, \$1000 to mile.

To be built in next 12 months? Ten or 15 miles, perhaps 25.

Approximate cost? Over \$1000 per mile.

Material? Principally crushed gravel.

Good sentiment. In favor very much.

BALLARD.

T. J. Neely, Wickliffe:

To be built in next 12 months? Four hundred miles.

working about 25 hands, and are making some fine roads. The sentiment of the county is favoring the chain gang very much.

WALTON.

J. B. Shelnett, Clerk Superior Court, Monroe:

Walton county has convicts, mules and machinery, with guards and overseers, all under the employ of ordinary. The yearly expense on roads is from \$20,000 to \$30,000.

WARE.

E. J. Berry, Clerk County Commissioners, Waycross:

Bonds to be issued? Next year expect to have election to authorize the issuing of \$100,000 bonds for roads.

When for sale? About July, 1910.

To be built in next 12 months? Twelve to 20 miles.

Approximate cost? \$8000 to \$10,000.

Materials? Clay and sand.

We have been building new first-class roads since 1902, and have nearly all the roads built. The next thing we want to do is to harden our sand roads. The most practical material with us in hardening the road is clay and sand mixed. Sentiment in our section is for more good roads. We are working misdemeanants and felony convicts.

WARREN.

C. M. Smith, Warrenton:

To be built in next 12 months? Fifteen to 20 miles.

Approximate cost? \$100 to \$300 to the mile.

Materials? Clay and sand gravel.

The sentiment is very good in our county. As we have a gang to work, we work our roads by convict labor. Our expenses for roads are about \$40 to \$50 per day.

WAYNE.

Ira M. Rayben, Jesup:

Our people are generally in favor of improved roads. We have been putting clay on our sand roads, and same gives good satisfaction. Expect to place county convicts on roads next year.

Approximate cost? About \$10,000.

Material? Dirt.

About \$15,000 is spent on roads and bridges in this county annually and building culverts, paid cash out of road and bridge tax fund.

BARREN.

G. M. Bohannon, Glasgow:

Bonds contemplated? Not for several years, if at all.

To be built in next 12 months? Five or six miles of pike and old roads repaired.

Approximate cost? \$18,000.

Material? Stone.

County sentiment is gradually going to the idea of good roads.

BRACKEN.

James A. McCane, Brooksville:

To be built in next 12 months? Three miles.

Approximate cost? \$1500 per mile.

Materials? Limestone—macadamized.

Our county fiscal court makes an annual levy amounting to about \$3000 for the purpose of building new turnpike roads. The county pays \$1000 per mile; the balance of cost is paid by individual subscription. There is also a levy made annually for the purpose of keeping the turnpike roads in repair. There are several turnpike roads in the county now under construction.

CHRISTIAN.

G. L. Campbell, County Court Clerk, Hopkinsville:
Approximate cost? \$2000 per mile.
Material? Crushed limestone rock.
Our people want good roads. On July 1, 1907, we issued \$100,000 worth of county bonds for road-building purposes, and we have constructed nearly 50 miles of turnpike. The money has been expended.

HICKMAN.

J. A. Porter, Clinton:
Bonds issued? None for county; \$15,000 for town.
Sold? Yes.
Been expended? Being expended.
Approximate cost? We expend annually \$12,000.

Our roads (400 miles) are worked by three supervisors. We have no rock—only clay subsoil—hence our roads are worked. We have good roads of the kind.

JACKSON.

D. G. Collier, McKee:
Our people are just beginning to realize the great benefit to be derived from good roads, and are in favor of them, but our county is not yet able to build them. Our taxable property value is only \$1,500,000, and the county is quite mountainous and roads are expensive to build. We have fine timber and coal, but no transportation.

KNOTT.

R. H. Amburgey, Hindman:
Our county has no roads in good condition. We have only dirt roads, kept up by road hands principally. Except when the road is in bad condition, the County Court will expend money to repair same, or the county fiscal lets out rock jobs, such as blowing rock, etc. The county expends about \$1600 each year on roads. Our roads stay in very good condition during the summer and fall, but are very muddy during winter season.

KNOX.

C. C. Smith, Barbourville:
Most people want good roads, but are not willing to pay the price.

LEWIS.

O. R. Pollitt, Vanceburg:
Bonds issued? \$2475.
Sold? Yes.
Bonds contemplated? Yes, about \$4000.
When for sale? Sold; taken up as road is built.

To be built in next 12 months? Probably five or six miles.

Approximate cost? From \$1500 to \$2000 per mile.

Material? Limestone rock.

Sentiment is for good roads. Would probably be stronger if persons building and paying for roads could use them with satisfaction. There is a strong feeling against building good roads and having them taken possession of by automobile owners.

McCRACKEN.

E. G. Boone, Clerk, Paducah:
Bonds contemplated? No proposition before the county.

To be built in next 12 months? The county is building new roads all the time and paying as they go.

Material? Gravel.

The sentiment in this county is for good roads, better roads, and the very best roads.

MARION.

A. R. Carter, Lebanon:
All people want good roads if someone else will pay for them.

MARSHALL.

J. N. Henson, Benton:
To be built in next 12 months? Possibly 15 miles.

Approximate cost? \$200 per mile.

Material? Gravel.

MEADE.

W. D. Ashcraft, Brandenburg:
To be built in next 12 months? Five miles.

Approximate cost? \$3000.

Material? Crushed rock after grading.

A good sentiment in favor of good roads, but no sentiment scarcely in favor of taxation for road purposes.

MENIFEE.

John Helton, Clerk, Frenchburg:

There is no money spent in our county on public roads. They are kept up by work laid off in divisions and worked by the hands that live in that division.

MERCER.

W. J. Poteet, County Clerk, Harrodsburg:

To be built in next 12 months? About 10 miles.

Approximate cost? \$1000 per mile to county, balance by private subscription, to cost about \$1300 per mile.

Material? Stone.

We have about 230 miles of good turnpikes, with a fund of about \$18,000 derived from tax levy, which is expended in maintaining same. The county has a road supervisor, elected by Fiscal Court each two years. The county owns its graders, a Kelly roller, plows and teams and quite a number of rock quarries, but makes contracts for crushing and spreading crushed stone under the direction of supervisors at about \$8 or \$9 per road of 18,000 pounds weighed by county.

MONROE.

W. A. Simpson, Clerk, Tompkinsville:
Material? Stone, if any.

The good-roads proposition has been discussed extensively, but as yet there has been nothing done.

MORGAN.

J. H. Sebastian, County Clerk, West Liberty:

Bonds contemplated? I guess not. Our roads are made by allotment of hands on sections of road.

To be built in next 12 months? Our roads are bad, and there is no prospect of their being better.

Materials? Dirt and sandstone.

The people seem to be anxious, but they don't want to work them. We will never have any roads until same are built by taxation.

MONTGOMERY.

John F. King, Mt. Sterling:

The county seems to want good roads. Our county has just bought and installed the latest machinery for building roads, such as crusher, roller, grader, steam drill, etc., in all expending nearly \$6000 for machinery. We have about 110 miles of pikes in the county, and expend about \$12,000 to \$14,000 per year in repairing them.

NICHOLAS.

John M. Campbell, County Clerk, Carlisle:

To be built in next 12 months? About five miles.

Approximate cost? \$1750 per mile.

Material? Stone.

We very much desire good or better roads or turnpikes. At present we rely on seven cents levy for construction of pikes, which is all we are permitted to

levy under present law, but are looking for relief at next session of Legislature.

OWEN.

R. J. Walker, Owenton:

We have just purchased two road machines and grader to repair our pikes. Have about 300 miles in the county that are bad, and are getting in miserably bad repair, and we have concluded that the first thing to do is to put the road in shape to drain the water.

OWSLEY.

H. C. Combs, Booneville:

Everybody is in favor of good roads.

RUSSELL.

Elmer Wheat, Jamestown:

There is but little interest in good roads in this county. There are only four or five miles of turnpike in the county. It was built by a corporation. All other roads are dirt, and bad, especially so through the winter and spring.

SHELBY.

Luther Black, County Clerk, Shelbyville:

To be built in next 12 months? Six miles.

Approximate cost? County appropriation, \$700; supplemented by interested persons, \$400.

Material? Stone.

This county has more miles of turnpike than any county in the State, and until this year roads have been worked by contract system. The system will be changed, however, in favor of road machine work, which we find to be very satisfactory.

SIMPSON.

A. H. Hill, Clerk, Franklin:

To be built in next 12 months? Fifteen miles.

Approximate cost? \$1800 per mile.

Materials? Rock and gravel.

About same number of miles and at same cost each year for the past five years. Good roads in the county.

LOUISIANA.**TAYLOR.**

S. E. Kerr, Campbellsville:
The sentiment for good roads in this county is growing very fast.

TODD.

C. E. Gill, Elkton:

Our people are just beginning to wake up and take some interest in the "good-roads" movement, and I think it only a matter of a short time until our county takes some action. It is my opinion that we will vote a bond issue next year, but as yet no action has been taken.

TRIGG.

L. R. Wallis, Clerk, Cadiz:

Our roads are all worked by road hands between the ages of 18 and 50 years, and the court appoints overseers, and they work from three to five miles, and all road hands are required to work six days in a year if they are called out.

WARREN.

Virgil Garvin, Bowling Green:

Our county expends about \$25,000 a year on roads, and is improving them gradually by annual taxation.

WASHINGTON.

W. F. Booker, Springfield:

To be built in next 12 months? Four miles by county and private subscription.

Approximate cost? \$900 per mile.

Material? Rock.

County sentiment is not in favor of voting bonds for same.

WOODFORD.

Richard H. Gray, County Clerk, Versailles:

To be built in next 12 months? We build about two miles every year.

Approximate cost? About \$1500 per miles.

Material? Crushed stone.

We have more than 200 miles of turnpike road. We spend about \$25,000 each year on roads and bridges. We have reconstructed some of our pikes, and will reconstruct several miles each year.

CAMERON.

John R. Reed, Cameron:

Bonds to be issued? Special tax.

Material? Earth.

County sentiment is indifferent.

CALDWELL.

N. L. Hower, Columbia:

To be built in next 12 months? No good roads under construction.

The people of this parish have not become interested in good roads yet. However, the sentiment in favor of good roads is fast growing, and I think in a short time it will spread to the parish. The people here seem to want good roads, but think it a great expense to have them.

DE SOTO.

J. W. Parsons, Mansfield:

Bonds issued? \$70,000.

Money expended? Now being expended.

Bonds to be issued? Yes.

To be built in next 12 months? Thirty to forty miles.

Approximate cost? \$15,000 to \$20,000.

Materials? Native soil.

Sentiment for good roads is changing; is now very strong.

FRANKLIN.

H. J. Lea, Clerk of Court, Winnsboro:

The sentiment is strongly in favor of building good roads. But a new courthouse and schoolhouse and quite a lot of iron bridges have been recently built, and the police jury is not quite ready to take up the question of good roads.

GRANT.

James J. O'Quinn, Colfax:

The road-building proposition has not been fully launched in this parish. We have poor roads, and need a change badly from old-style workings.

IBERVILLE.

Chas. E. Grace, Deputy Clerk of Court, Plaquemine:

This parish has not started on the intended building of good roads, but the movement is on foot, and I think work will be commenced next spring.

JACKSON.

L. W. Ramsey, Clerk of Court, Vernon:

The people want good roads, but the county is involved otherwise, and is not able to build good roads; that is, in the sense you refer to.

LAFAYETTE.

J. Gilbert St. Julien, Clerk District Court, Lafayette:

Bonds contemplated? There is agitation of a special tax for road purposes to be submitted to the people at an election to be called for, and in case the tax was to carry, bonds might be issued.

Materials? Exclusively dirt roads, although experiments are being made in town of Lafayette and town of Broussard with oil roads with asphalt base as a sprinkler to make oil road and minimize dust.

County sentiment is good.

LAFORCHE.

J. Louis Aucoin, Clerk of Court, Thibodaux:

The great majority seems to be in favor of good roads. The members of the Police Jury are more or less interested in good roads.

MOREHOUSE.

There is a tax levied for the purpose of making good roads, and roads are being worked with traction engines and road machines. Good work is being done, but rather slowly.

OUACHITA.

W. A. Myatt, Clerk District Court, Monroe:

To be built in next 12 months? About 50 miles.

Approximate cost? Can't say now, as the present plan is an experiment.

Materials? For the present native soil, i. e., clay, sand and gravel.

The sentiment is very strong in favor of the good-roads movement all over our State. This parish began a system of road-working with improved implements more than seven years ago by taxation; that is to say, a special tax on property, both real and personal, and \$1 per capita tax on all male persons over the age of 15 and under 50. The amount received from this tax amounts to about \$25,000 per annum. The Governor of our State recently became interested in the good-roads cause, and is now furnishing convicts to several different parishes free of charge, the different parishes to pay all expense of maintenance, of course, for the purpose of road building. We have here in this parish 100 of these convicts now at work on a special piece of "bad road," and have now completed five miles of same very satisfactory to the authorities. The work is conducted under the management of expert road men from the United States Government, and we expect to see within the next 12 months great improvement in road building in this parish. Of course, the revenue will not be sufficient to push the work very fast, but we intend to double the amount soon in some way, just how I am not now prepared to say.

TANGIPAHOA.

C. L. Buck, Amite:

To be built in next 12 months? 250 miles, if any.

Approximate cost? \$500 per mile.

There is some work going on to get the police jury to appropriate money for good roads.

TENSAS.

Joseph Curry, St. Joseph:

To be built in next 12 months? One hundred miles.

Approximate cost? \$416,000.

Material? Dirt.

The sentiment is in favor of good roads, and the roads are being built by taxation annually.

WASHINGTON.

M. A. Thigpen, Clerk of Court, Franklinton:

Bonds issued? \$100,000.

Sold? No.

When for sale? Soon.

To be built in next 12 months? Probably about 200 miles.

Approximate cost? Don't know.

WEBSTER.

J. H. Tillman, Clerk District Court, Minden:

There was recently here in Webster parish an election for a tax to build public roads, the result being decidedly against

MARYLAND.**ALLEGANY.**

J. W. Young, Clerk of Court, Cumberland:

To be built in next 12 months? About six miles.

Approximate cost? From \$50,000 to \$60,000.

Material? Limestone.

There is a very strong sentiment and demand for better roads in our county, and I look for great improvement in the next few years in road building in this county.

CAROLINE.

S. L. Dukes, Clerk to County Commissioners, Denton:

Bonds to be issued? Under consideration.

When for sale? Probably in 1910.

To be built in next 12 months? Probably from three to five miles.

Materials? Shells or stone.

The sentiment is good in this county, and there has been over \$35,000 spent in the last four years for State roads alone.

CHARLES.

Francis D. Mudd, La Plata:

To be built in next 12 months? About five miles, as below.

Approximate cost? \$35,000.

Material? Gravel.

The State Roads Commission is having built 4.66 miles of road running north from La Plata at a cost of \$31,000, and there is being built at Indian Head, this

MISSISSIPPI.**AMITE.**

G. M. Causey, Liberty:

Our people are opposed to a bond issue of any kind at present, on account of the depredations of the boll-weevil in the cotton fields.

BOLIVAR.

L. E. Edwards, Rosedale:

Bonds issued? \$75,000.

Sold? Yes.

Money expended? Being expended.

To be built in next 12 months? As many as possible.

Material? Scrapers.

the tax; not that our people are opposed to being taxed for that purpose. They are in favor of it, and are willing to pay a tax to get good roads, and believe that it is the only way we will ever get them, and will, I think, eventually vote the tax, but don't feel that they are in a financial condition to do so now.

WEST CARROLL.

R. F. Cummins, Floyd:

To be built in next 12 months? None. They will probably all be worked a little with free labor.

The sentiment of our people generally advises working roads by taxation, but we have never taken a vote on it yet. I think our people will take more interest in a few years.

WINN.

Perry K. Abel, Winnfield:

Bonds to be issued? An effort will be made to vote tax and float bonds at an early date.

Winn parish built one piece of road across Dugdemonia Bayou swamp, a distance of one mile, at a cost of \$7000, about three years ago. The good-roads question is attracting considerable attention in our parish just now. I attach hereto report of a mass-meeting held in the courthouse in Winnfield, 19th inst., which will give some idea of what we expect to do in the way of creating funds for road purposes.

county, one-half mile of road under the Shoemaker law at a cost of about \$3000. The sentiment for good roads is very favorable, but we think the cost above is too great for the county itself to accomplish enough to be of any material benefit to the people generally.

MONTGOMERY.

R. C. Hilton, Clerk County Commissioners, Rockville:

Bonds issued? \$32,500.

Sold? Yes.

Bonds contemplated? \$25,000, about April 1, 1910.

To be built in next 12 months? Ten to 15 miles.

Approximate cost? About \$6000 to \$8000 per mile.

Materials? Trap rock and limestone.

PRINCE GEORGE'S.

Henry St. J. L. Briscoe, Clerk to County Commissioners, Upper Marlboro:

To be built in next 12 months? Eight miles.

Approximate cost? \$7000 to \$10,000 a mile.

Materials? Stone and gravel.

County sentiment in favor of good roads is growing daily.

SOMERSET.

Robert F. Maddox, Princess Anne:

To be built in next 12 months? Probably three or four.

Approximate cost? Don't know.

Material? Stone, I suppose.

Sold? Yes.

Bonds contemplated? Will probably issue more next year.

To be built in next 12 months? Three will be completed in 30 or 40 days.

Approximate cost? Hoping the cost will be less than \$20,000.

Material? Novaculite.

DE SOTO.

D. E. Wilson, Nesbitt:

Bonds contemplated? As soon as present contract for working the public roads expires, which is January 1, 1912.

To be built in next 12 months? Just completing six miles of gravel road.

Approximate cost? \$1200 per mile.

Increasing rapidly. Would have issued \$15,000 in bonds this fall but for doubt as to legality with existing contract for working roads.

HINDS.

C. S. Spann, Raymond:

Bonds contemplated? Under discussion. To be built in next 12 months? Experimental only.

JACKSON.

Irving P. Delmas, Scranton:

Bonds issued? \$30,000.

Sold? Yes.

To be built in next 12 months? 200 miles.

Approximate cost? \$30,000.

Material? Earth.

County sentiment is very favorable. Contracts for the expenditure of \$30,000 in earth roads are now being advertised.

JEFFERSON DAVIS.

J. M. Burrow, Prentiss:

Bonds issued? \$20,000.

Sold? Yes.

To be built in next 12 months? About 350 miles being built.

Approximate cost? \$60 per mile.

County sentiment is fair.

LEE.

F. L. Kincannon, Tupelo:

To be built in next 12 months? Four miles.

Approximate cost? No estimate yet made.

Material? Sand-clay.

The sentiment in favor of building good roads is growing. I would be pleased to have any literature or suggestions you have to offer along this line.

MONTGOMERY.

J. T. Parks, Winona:

To be built in next 12 months? No more than the overseer may make.

Our county is under the overseer system.

LAWRENCE.

The bond issue was voted down July 9.

NOXUBEE.

John A. Tyson, Chancery Clerk, Macon:

Bonds contemplated? Change in present method contemplated. Do not know whether bonds will be issued or not, but think not.

To be built in next 12 months? Under consideration.

Sentiment in favor of good roads is growing, but there is yet room for growth.

OKTIBBEHA.

E. O. McIlwain, Starkville:

The people generally are advocating good roads, but it seems that they are not willing to pay the price that it will take to make good roads.

PEARL RIVER.

H. S. Smith, Chancery Clerk, Poplarville:

To be built in next 12 months? All to be very good.

Approximate cost? \$32,000.

Sentiment for good roads is very good.

PERRY.

E. E. McCoy, New Augusta:

Bonds issued? \$30,000.

Sold? Yes.

Bonds contemplated? Not at this time.

To be built in next 12 months? We are not trying to build any first-class roads, but are improving all of them.

Material? Dirt.

I think the sentiment of the county is in favor of good roads.

SHARKEY.

We have the old overseer system, and nothing will be done.

SIMPSON.

J. F. Thaines, Chancery Clerk, Mendenhall:

The sentiment is growing in favor of good roads, but no steps have yet been taken by the Board of Supervisors toward securing same.

TATE.

J. A. Wooten, Chancery Clerk, Senatobia:

Our roads are worked by a contractor or contractors. We have not done any road building, and I do not think any will be done in the near future. Some of our citizens are agitating the question, and I think this agitation will bear fruit in the future.

TIPPAH.

G. O. Duncan, Circuit Court Clerk, Ripley:

The sentiment of working public roads

by taxation is very strong, and if an election should be held to ascertain whether or not the people wanted roads worked by taxation I think it would carry a majority in favor of taxation, though it might fail. We now work the old plan, and have poor roads in our county.

TISHOMINGO.

P. W. Patterson, Chancery Clerk, Iuka:

Our county works roads under the old system. Every man is liable to road duty.

TUNICA.

F. L. Hope, Chancery Clerk, Tunica:

The county has been using road graders on its roads for several years; has used no gravel or other materials of that kind, but has depended on drainage and keeping the roads raised in the middle, with good ditches for drainage, which purpose is accomplished by the grader. During the last fiscal year this county paid out for roads and bridges about \$29,000, and it is likely that it will expend as much in the next year.

WILKINSON.

Lyt Lewis, Clerk, Woodville:

To be built in next 12 months? 450 miles.

Approximate cost? \$10,000, contract price.

Materials? Dirt and gravel.

This county works its roads under contract system, and has done so for eight years, spending about \$12,000 per year on same. Has three-mill tax on property and \$3 per capita tax on all males from 18 to 50 years old, and has generally very good dirt roads.

MISSOURI.

ADAIR.

J. T. Waddill, Kirkeville:

County sentiment is not favorable.

ANDREW.

E. E. Zimmerman, Savannah:

We spend about \$30,000 each year on roads in the way of cutting down hills and building concrete and steel bridges.

ATCHISON.

Charles A. Wells, Rockport:

To be built in next 12 months? We have no rock in this county, and can only have graded and dragged-dirt roads.

Approximate cost? We expend about \$30,000 to \$40,000 each year on our roads and bridges.

On account of our rolling country and the depth and looseness of our soil, it is hard for us to keep up our roads. We have to expend all the money available to keep them passable.

BELL.

W. S. Shipp, County Judge, Belton:

We spend about \$20,000 a year on county roads—no permanent improvement, but mostly repair work. People are afraid of bond issues. Need educating to see that it is better to make permanent improvements than to while away the people's money as at present.

BOONE.

John L. Henry, Columbia:

Our people have been deeply interested in building of good roads, but, owing to the fact that county has been unable to assist, nothing has been done of any consequence the past year, except in a small way. We have in all about 65 or 70 miles of gravel roads.

BUCHANAN.

S. P. Smith, St. Joseph:

To be built in next 12 months? Six miles.

Approximate cost? \$30,000.

Material? Macadam.

We have a fund coming from dramshops of the city of St. Joseph of \$60,000 yearly for permanent road improvement, viz., grading and macadamizing. We also have \$70,000 raised from levy for road maintenance.

BUTLER.

M. J. Armstrong, Poplar Bluff:

To be built in next 12 months? Nothing has been done, aside from regular yearly work.

The people are beginning to take an interest in the matter of good roads. There is some talk of organizing one "Special Road District."

CARROLL.

E. A. Dickson, Carrollton:

We have only dirt roads, and they are kept in repair by grading and repairing and building bridges. The work is done by a direct-tax levy, and the bridges built by the county and paid for out of the county revenue.

CALLAWAY.

W. R. Taylor, County Clerk, Fulton:

Sentiment is good, and some action may be taken, but not within 12 months.

CASS.

W. E. Beck, Harrisonville:

To be built in next 12 months? Four or five miles now under construction.

Approximate cost? \$4500 a mile.

The north side of our county has two rock roads under construction, but is building by subscription, with State help.

CEDAR.

E. W. Montgomery, County Clerk, Stockton:

We have a 25-cent levy on all property for road purposes. Are only beginning to

grade our dirt roads. Sentiment light, but growing.

CHARITON.

C. C. Parks, Keytesville:

The people are for good roads, but not strong enough to vote bonds to build them. I suppose that we will have to put up with dirt roads. We have had three crop failures, and to vote bonds would be an impossibility at this time.

CHRISTIAN.

W. A. Hale, County Clerk, Ozark:

To be built in next 12 months? We are grading our roads each year.

Approximate cost? \$8000.

Materials? Dirt and stone.

The sentiment is strong in favor of good roads, and we are making a great improvement on them all the time.

CLAY.

T. C. Stean, Liberty:

Some talk of building rock road from Kansas City to Excelsior Springs, Mo.

COOPER.

J. T. Hays, Boonville:

Approximate cost? It costs about \$3000 per mile to build permanent roads in the county.

Materials? Limestone and flint.

We have a good county, plenty of money. Our valuation is about \$10,000,000, or rather that is the assessed valuation, and that is about one-fifth of the actual value. Our road tax amounts to something like \$12 per mile each year, which is about one-half that should be expended. The people are getting more and more interested in the roads, and I think that we are at a point where the people are going to put their shoulders together and have better roads. I think that our county court will levy a higher road tax, and we will be able to meet the demands for more money, which is necessary to have better roads. We have a highway engineer, who has supervision of the roads, and he is under the instructions of the county court. Our land is selling for from \$60 to \$100 per acre, which is an advance of practically 100 per cent. in the last 15 years, and it is getting time that our roads should improve in proportion.

DAVIESS.

H. Frank Lawrence, County Clerk, Gallatin:

The sentiment in this county is for better dirt roads, but as yet the point has not been reached where good macadam roads will be built.

DE KALB.

D. F. Hensel, County Clerk, Maysville:

We have good hard dirt roads, and it is not probable that there will ever be a necessity for any other kind of roads in this county.

DOUGLAS.

Earnest C. Bunch, County Clerk, Ava:

Materials? Dirt and rock.

Our county is very rough, and the assessed valuation is low. Therefore, the road question has been neglected.

FRANKLIN.

Joseph A. Mintrup, Union:

To be built in next 12 months? None this year; several miles in contemplation next year.

There is a strong feeling for better road improvements in this county. Road building and improving roads are done by taxation on property and by levying a poll-tax.

GASCONADE.

Theo. Graf, Hermann:

To be built in next 12 months? Two miles.

Approximate cost? \$5000.

Materials? Macadam and gravel.

The sentiment is warmly in favor of good roads, and our farmers are making special efforts and sacrifices to get them. Gasconade county has a population of 12,000, and spends annually \$16,000 to \$18,000 for roads.

HOLT.

F. L. Zeller, Oregon:

This county having but little stone, the roads are dirt roads, and the sentiment is for best dirt roads possible.

IRON.

Jos. A. Reyburn, County Clerk, Iron-ton:

Material? Rock and gravel.

All in favor of good roads.

JACKSON.

R. T. Proctor, County Highway Engineer, Courthouse, Kansas City:

To be built in next 12 months? Probably 25 miles of graded and 12 or 15 miles of macadamized roads.

Approximate cost? Average for graded ones \$2500 per mile, and \$5000 for macadam.

Material? Macadam.

Everybody in favor of good roads. We have an income of about \$250,000 annually, derived from saloon license, that is expended each year on the county roads.

JOHNSON.

J. R. Grinstead, Warrensburg:

Our court spent \$8000 on concrete culverts last year, and are spending \$10,000 this year, and expect to continue this policy for five years, then will commence grading. The average cost per culvert is about \$100.

KNOX.

F. M. Miller, Edina:

The people are in favor of the building of good roads. The question in this county is getting the material—rock and gravel are very scarce. The only method we have now in working our roads is grading and dragging. The drag is all right on dirt roads.

LAWRENCE.

John A. Williams, Aurora:

To be built in next 12 months? About 50 miles.

Approximate cost? \$150 per mile for dirt roads and \$4 per mile for gravel roads.

Materials? Dirt and creek gravel.

About 75 per cent. of the roads of our county contain natural rock and gravel sufficient to make a good road. The creeks and branches abound in gravel, which costs only an average of 50 cents per yard placed on the road. Our work is done by a poll tax of \$4 per head for men 21 to 50 years of age (in work or cash), and a tax of 25 cents per \$100 of value on all taxable property, which is usually listed at about 33 1/3 per cent. of its actual value. We have the promise of State aid, but as yet have received nothing.

LINCOLN.

Nim R. Long, Troy:

To be built in next 12 months? None by the county; 25 miles by a gravel-road company.

Approximate cost? \$40,000.

Material? Creek gravel.

The sentiment is fine, but funds are short, and our people get sore when the question of higher taxation is mentioned for any purpose. They are just wiping out an old railroad bonded debt.

LIVINGSTON.

A. M. Shelton, Chillicothe:
To be built in next 12 months? Estimate, five miles.
Approximate cost? Can't say; most of it donation work.
Material? Rock.
Our county is behind in road building. Lots of talk and no action.

MACON.

Nick M. Woody, Macon:
Our road work is simply repair work, no permanent or hard roads being built in the county.

MADISON.

J. M. White, Fredericktown:
People are all in favor of good roads, but a majority don't seem to want to bond the county to pay for them, and our taxes cannot keep up repairs, without building any more new roads.

MARION.

Thomas B. Arnold, Palmyra:
I should say sentiment is favorable to good roads.

MONTEAU.

D. W. Sartain, California:
To be built in next 12 months? What can be built by subscription.
Material? Gravel.
The people are divided on the road question. Some are in favor of good roads, and some are not willing to pay the tax for making same.

MONTGOMERY.

E. W. Hunter, Montgomery City:
Everyone wants good roads, but there has not been a thing done in that line.

MORGAN.

Lewis Lumpee, County Clerk, Versailles:
The feeling toward good roads is good. The roads in this county are being constructed and maintained by the local road districts, and gravel is used only, except in places that are wet and soft. In those places small rock is used first, topped with a heavy coat of gravel. Roads built in this way have been found to last well, and are not expensive here, as the material is plentiful. Usually for a good roadbed 16 to 20 inches of gravel is put on, then the road will last for many years without further work. We have many miles of road constructed in this way, and most of the road districts do this kind of work every year; by taxation this year. The tax for road purposes is 20 cents on the \$100 valuation.

OREGON.

Loerwood Davis, Alton:
To be built in next 12 months? None but dirt roads.

OZARK.

Prentice E. Bushong, Gainesville:
County sentiment is very dull.

PERRY.

Joseph Modde, Perryville:
Sentiment splendid, but not sufficient to produce the necessary funds.

PULASKI.

E. C. Williams, County Clerk, Waynesville:
To be built in next 12 months? Twenty miles.
Materials? Rock and gravel.
All county roads are opened under the law by road hands, who work four days each year or pay \$1 per day. We expended \$4000 last year on the roads; used rock and gravel.

RALLS.

R. A. Briscoe, New London:
To be built in next 12 months? Ten or 15 miles.
Approximate cost? \$500 per mile.
Material? Gravel.
Everybody wants good roads.

RIPLY.

W. H. Stone, Doniphan:
County sentiment is in favor of good roads, but there are not sufficient means for further than ordinary road work and repairs.

ST. CHARLES.

H. C. Sanford, St. Charles:
To be built in next 12 months? One or two miles.
Approximate cost? \$12,000.
Materials? Rip-rap and macadam; cinder crossings.

We all favor good roads. Good roads, however, are expensive. In parts of our county, where creek gravel is plentiful, we are now getting good roads. Farmers who are and have been prosperous for the last four or five years are subscribing quite liberally for roads, and our county finances are in such shape that we are meeting them half way. Thus we are building good roads and keeping old roads in a fairly good condition.

ST. CLAIR.

Geo. W. Davies, Osceola:
The sentiment for the building of roads in this county is growing.

ST. FRANCOIS.

J. A. Lawrence, Farmington:
To be built in next 12 months? Ten miles.
Approximate cost? \$3000 per mile.
Material? Macadam.
A bond was voted on and defeated in 1904. We have been constructing permanent roads from the receipts of dramshop revenue for the past 12 years, until in March, 1908, the county was voted dry, and during 1908 and 1909 no permanent roads have been constructed, but the local-option election has been held to be invalid, so that we are again securing the benefits from that source, and our county has levied a direct tax of 20 cents for permanent road and bridge construction under a constitutional amendment adopted at the election of 1908, which, for the next year, together with the dramshop revenue, will aggregate nearly \$35,000, which will be expended next year.

SALINE.

W. G. Durrett, County Clerk, Marshall:
The only road work this county does is repair the dirt roads.

SCOTLAND.

Walter B. Scott, County Clerk, Memphis:
We have nothing to make roads but dirt. We have as good dirt roads as any of the adjoining counties. People are taking quite an interest in the building and improving of the roads.

SHANNON.

C. S. Norton, Eminence:
Materials? Stone and dirt.
Most all in favor of good roads, but the county is not financially able.

SHELBY.

E. M. Terrill, Shelbyville:
We don't build permanent roads in this county. Sentiment against the issuing of bonds for road purposes.

SULLIVAN.

Mark H. Mairs, Milan:
The sentiment seems to be that we need

better roads, but sentiment does not build them.

TEXAS.

J. M. Denny, Clerk County Court, Houston:

Bonds issued? None; but we made a levy of 20 cents on the \$100 valuation. Work roads by districts, each district having a road overseer.

To be built in next 12 months? Have no way of knowing.

Approximate cost? About \$500 per mile.

Materials? Stone and gravel.

The County Court is the custodian of the road fund, and would probably be interested in your papers on good roads.

WARREN.

C. E. Schroeder, Warrenton:
County sentiment is against bonding for the purpose of good roads.

NORTH CAROLINA.**ALEXANDER.**

Chas. P. Mathison, Taylorsville:
The sentiment in favor of good roads is growing in my county. Roads in bad condition, and something must be done. Our people, or the best of them, are awaking to the greatest need—the best thing for the farmer and county—good roads. They are coming sooner or later.

ANSEN.

Thomas C. Robinson, Wadesboro:
Our county has never issued bonds for road building. We work our roads by direct taxation. Wadesboro township did about 10 years ago issue bonds, but the entire county is now worked by direct taxation. Our people are all for good roads. Material used is gravel principally, with clay or sand.

ASHE.

W. E. Johnson, Jefferson:
Roads are in bad condition, and no money spent or to be spent shortly.

BEAUFORT.

Gilbert Rumley, Register of Deeds, Washington:
People are favorable, but not willing to vote a bond issue.

BERTIE.

W. L. Lyon, Windsor:
Favorable sentiment for improved roads prevails in this country, and right much work has been done. Our county levies 18½ cents on each \$100 of property for road purposes. Three road machines, with mules to operate same, and other necessary equipment have already been bought, and the roads put in much better condition than they were before.

BLADEN.

W. J. Davis, Elizabethtown:
The public sentiment is growing in regard to building good roads.

BRUNSWICK.

R. S. Newton, Southport:
Bonds issued? \$12,000.
Sold? Yes.
Bonds contemplated? Some time in near future.

Our people are very much enthused over the good-roads question, and I think in the near future Brunswick will be going forward in this matter.

BUNCOMBE.

Marcus Erwin, Asheville:
Bonds issued? \$25,000 by Black Mountain township.
Sold? Yes.

WASHINGTON.

John O. Long, Potosi:
To be built in next 12 months? But few.
Materials? Rock and gravel.
The sentiment is good, but there is no intention. No one is urging in a systematic way.

WEBSTER.

S. A. Killian, Marshfield:
Materials? Rock and gravel.

WORTH.

W. C. Childers, Grant City:
We may grade some dirt roads. That is all we would be able to do.

WRIGHT.

J. A. Russell, Hartville:
To be built in next 12 months? Twenty miles.
Approximate cost? \$3000.
Materials? Dirt, crushed rock and gravel.

Bonds contemplated? Swannanoa township, \$25,000; Fair View township, \$25,000.

When for sale? Late fall or spring.

To be built in next 12 months? 15 or 20 miles, probably 20.

Approximate cost? Estimated between \$3500 and \$5000 per mile.

Material? Macadam.

Two years ago a proposition to issue \$250,000 bonds for road improvement was defeated by a small majority. Today such a proposition would carry overwhelmingly. Sentiment is strong for good roads, and growing all the time.

BURKE.

L. A. Bristol, Clerk Superior Court, Morgantown:

The question of bonds is being agitated at this time. We expect soon to get the people worked up to issuing bonds for roads.

CABARRUS.

M. B. Stickley, by request of M. L. Widenhouse, Clerk, Concord:

Bonds issued? None. About \$75,000 has been expended for good roads.

To be built in next 12 months? Five miles.

Approximate cost? \$10,000.

Materials? Stone and gravel.

Our county is in debt about \$100,000 for good roads and bridges. The coming election (September 15, 1909) is to secure the issue of bonds to pay off this floating debt. From present indications the bond issue will not carry, because no one is really taking a live interest in it. Our people are deeply interested in good roads, and are anxious to build roads. The funds for the purpose now alone is \$25,000 per year in a small county. Our people will pay a high rate of direct taxation to secure these improvements. Our county has outside of the county about 50 miles of good macadamized roads and the same amount of good graded roads. The county has a force of about 35 men grading and building permanent roads the year round. These men have good machinery, good tools and good teams to do the work, and they are doing some fine work in grading and building good roads. The lands along these new highways are rapidly improving in value, and our people are building better homes and doing better farming. Indeed, our county since the coming of good roads and rural free mail delivery is becoming a delightful place to live. The farmers themselves are the most independent people we have as a class, and if good prices continue they will indeed be the money-lenders of the country.

CALDWELL.

J. W. Curtis, Lenoir:

Bonds issued? Nothing, except for street improvement, and these bonds have been sold.

To be built in next 12 months? Some 15 miles. A turnpike to be macadamized from Lenoir to Blowing Rock, in Watauga county.

Approximate cost? \$75,000.

Materials? Dirt and stone.

There is a growing sentiment in this county in favor of good roads, but no bonds have ever been voted. Our people are tired of mud.

CATAWBA.

C. M. McCorkle, Clerk Superior Court, Newton, N. C.:

To be built in next 12 months? Five miles.

Approximate cost? \$3000.

Material? Macadam.

There have been no bonds issued in this county, but at the June meeting of the commissioners there will probably be levied a tax of 20 cents on property for road purposes. The county also has a fund of \$10,000, which the Good Roads Association will urge the commissioners to spend for road purposes. Favorable sentiment is increasing very much.

CHATHAM.

James L. Griffin, Clerk, Pittsboro:

Very little improvement has been made. No bonds have ever been issued in this county for road building. Centre township voted on the question last May, and bonds were defeated two to one. We are yet at work on public sentiment, which seems to be improving.

CHEROKEE.

J. R. McLelland, Murphy:

Bonds issued? None, but have a special road levy of 33½ cents for road purposes. To be built in next 12 months? Four or five miles.

Approximate cost? \$500 per mile.

Material? Crushed stone.

We are making a great mistake by not issuing bonds instead of our present system, and I think the people will realize it before many months longer and vote the bond issue. Yes, our people are wanting good roads.

CHOWAN.

C. W. Calfield, Edenton:

We are just beginning to take interest in good roads. Trust we will make some headway.

CLAY.

G. W. Sanderson, Hayesville:

County sentiment favorable to good roads, yet no action can be taken in that direction. There is a strong sentiment in the county in favor of issuing bonds, but it is uncertain whether a majority of voters will favor the issue. There is a small tax collected every year to aid in keeping up the roads, but it is spread out over every road in the county and practically no benefit is derived from the tax.

DAVIDSON.

Walter G. Fitzgerald, County Treasurer, Lexington:

Bonds contemplated? An election has been called for October 12 to vote on an issue of \$100,000 in Lexington township to build macadam roads with.

To be built in next 12 months? About 35 miles.

Approximate cost? \$100,000.

Material? Stone.

Public sentiment is growing more and more every day, and the people are talking good roads as they have never done before.

DAVIE.

A. T. Grant, Mocksville:

The sentiment in the county in favor of good roads is very good, but it is all talk and no do. They would like to have good roads, provided it did not cost them anything.

FRANKLIN.

R. B. White, Superintendent of Schools, Franklinton:

Bonds issued? The Legislature of 1909 authorized an election in Franklinton township on the question of issuing \$40,000 in bonds for building roads in that township. Election was held April 6, 1909, and was carried overwhelmingly. \$10,000 of the bonds have been issued and sold, and the proceeds are now being expended. The remaining \$30,000 will be issued and sold as the work demands.

To be built in next 12 months? It is probable that 20 miles of road will be built in the township during the next 12 months.

Approximate cost? Judging from work up to the present, the approximate cost will be \$600 a mile.

Material? The roads are 30 feet wide. The maximum grade 4 per cent., surfaced with six inches of gravel. The abundance and convenience of gravel beds is largely responsible for smallness of cost.

The sentiment for good roads in this county is rapidly growing. The recent Legislature passed a bill allowing the various townships in the county to hold elections on the question of special road tax at any time, and it is probable that several of these elections will be held within the next year.

GATES.

W. T. Cross, Gatesville:

The sentiment for good roads is growing here, but no action has yet been taken.

GRANVILLE.

J. G. Shotwell, Oxford:

Bonds issued? \$100,000.

Sold? Yes.

To be built in next 12 months? Hoping for 70 or 100 miles.

Material? Mostly soil.

Everyone seems to be in favor of good roads. Sentiment as to best plan. Some favor direct taxation, but I think a majority bonds.

HARNETT.

Floyd H. Taylor, Lillington:

There is a strong sentiment in this county for good roads. However, there has been very little done as yet. We hope to be in shape to begin to make good roads in the near future.

HERTFORD.

Thomas D. Brown, Winton:

To be built in next 12 months? Twenty miles.

Material? Sand on clay roads.

The sentiment for good roads on the increase. Many people are in favor of taxation, and several townships have already levied a tax, and one has a road machine at work, and others will follow in the near future.

IREDELL.

J. A. Hartness, Statesville:

The county convict force is building macadamized roads in Iredell.

LENOIR.

Plato Collins, Kinston:

Am sorry to say there is little general interest. None of our people are concerned about it, however. Our people fear our sandy roads and the absence of rock make the building of permanent roads impracticable because of the great cost.

MCDOWELL.

D. M. Gibson, Marion:

To be built in next 12 months? All the work will be done by the chain gang, and I can't say how many miles will be built.

Approximate cost? The cost has been running from \$200 to \$600.

The people, as a rule, are very enthusiastic over good roads.

MACON.

R. M. Ledford, Franklin:

A great many of our people are becoming interested in good roads. The good-roads sentiment is increasing.

MADISON.

James Smart, Marshall:

The sentiment is growing in my county for good roads, and we are agitating the question all we possibly can. We are going to use all efforts with our General Assembly the next time it meets, which will be the latter part of 1910, to pass an act to bond our county for \$300,000 for the construction of macadam roads, and we are very sanguine of success.

MECKLENBURG.

W. M. Lord, Chairman Board County Commissioners, Charlotte:

To be built in next 12 months? About 15 miles.

Approximate cost? Average cost at \$3500.

Material? Stone.

Our people want more roads. The only kick is that we cannot build them fast enough for them. We levy a tax of 20 cents on the \$100 property for building highways, and pay as we go. Our county has never issued any bonds for road-building. We have about 200 miles. There is no kicking about the road taxes with our farmers.

MONTGOMERY.

Charles A. Armstrong, Troy:

The sentiment in this county for good roads is growing. A special act was passed by the last Legislature authorizing the levy of a tax of two cents on the \$100 for road purposes, which was done. This will, I think, tend to show the advantage of even a slight improvement, create interest in good roads and arouse the people to the necessity of still greater improvement.

MOORE.

N. A. McKeithen, Carthage:

Bonds issued? Will be about \$15,000.

To be built in next 12 months? Thirty to 40 miles.

Approximate cost? \$300 per mile.

Materials? Sand and clay.

We have been working by taxation in four townships two years. Will continue until we get all roads in said townships in good shape.

NORTHAMPTON.

S. B. Dameron, Reidsville:

We had a plan under consideration by which we expected to build a number of miles of road within the next 12 months, but the plan has not yet been adopted. We are now using a regular road fund of about \$12,500 per year and working our short-term criminals in building permanent roads. With that force we build only about three or four miles per annum. I have charge of the engineering on this. The supervisor of roads, Mr. G. W. Estes, has charge of construction. I shall inform you promptly if we enter upon a plan for more extensive road-building. That is indefinitely postponed at present. The roads we have built are macadam. Suitable rock will be difficult to find in some parts of this county. We think of building a few miles of sand-clay road for trial.

ORANGE.

C. Straghan, Clerk Superior Court:

Bonds issued? \$10,000 for town of Hillsboro; \$8000 for public roads.

Sold? Yes.

To be built in next 12 months? Ten miles to be completed.

Approximate cost? About \$4000 per mile.

Material? Rock.

Good roads improving in popularity.

PERSON.

D. H. Bradsher, Roxboro:

Bonds contemplated? I think there will be an issue.

When for sale? Not 'till after next Legislature.

To be built in next 12 months? Probably 15 or 20 miles, built of dirt, etc.

Approximate cost? \$100.

Materials? Dirt, soil and sand.

The sentiment in favor of good roads is growing fast. The sentiment keeps pace with education. You can never get people out of old ruts until they are educated out of them. Some old foggy will think bond issue will condemn him and his offspring to purgatory. Our county should have \$100,000 issue of bonds at the earliest time possible. I am one that believes in a bond issue, and a firm believer that an appropriation by the Government would be more beneficial to citizens of the United States than a ship subsidy.

PASQUOTANK.

J. C. Spence, Register of Deeds, Elizabeth City:

Pasquotank county commenced to work roads in 1905 with convict labor, establishing a chain gang and working from 20 to 50 convicts all of the time. County issued \$10,000 in bonds for this purpose in 1905 and in 1906, part of which has been paid. Roads worked altogether by taxation, and while there is some objection to this method, I believe it is gaining in favor, and the sentiment in favor of good roads generally increasing.

POLK.

F. M. Burgess, Columbus:

Bonds issued? \$12,000 in one township only.

Sold? Yes.

Tyron township has voted \$12,000 for her roads individually, and has put in about three and one-half miles of macadamized roads.

RANDOLPH.

W. C. Hammond, Asheboro:

There is some talk of calling an election to vote bonds for roads. I do not think it will be called this year. We have plenty of the best rock for roads in the State, and there is considerable talk about the matter, and we hope some time in the near future to be able to carry a bond issue for roads.

RICHMOND.

B. Furman Reynolds, Register of Deeds, Rockingham:

I beg to send you a clipping that was written about our good roads some time ago, as follows:

"The roads of Richmond county are unusually good. Two of the seven townships voted 'bonds and taxes for good roads' in the early part of 1905. From September of that date until the same to September, 1908, there has been located and constructed—under the supervision of Capt. W. I. Everett—75 miles of good roads. Many persons were not favorable to this project, but since seeing and using the same, they are convinced that no work of greater benefit to the people, and espe-

cially to the farmers, could have been done.

"The maximum grade is 6 per cent., and it is possible to haul 2500 pounds with two mules as easily as 1500 pounds could be hauled over the old roads. It is possible to travel eight miles now with more ease on horse and man than five miles formerly.

"One year ago three other townships voted 'bonds and taxes for good roads,' and they are prosecuting road building with vigor. In the county there are now about 120 miles of good roads in the five townships, with a force of hands in each township adding more. The opposition that existed before the work commenced has almost given away to the better judgment of the people, who know a good thing when they see and use it. They realize that results are showing in a better citizenship, better school facilities, better church attendance and enhanced valuation of land."

ROCKINGHAM.

Jas. T. Smith, Wentworth:
Bonds contemplated? The question of borrowing \$100,000 is now being discussed, but not determined upon.

To be built in next 12 months? About five miles is certain; possibly more.

Approximate cost? \$3500 to \$4000 a mile.

Material? Crushed rock.

There is a very strong and aggressive sentiment in favor of good roads, and this sentiment is growing stronger every day.

RUTHERFORD.

M. O. Dickinson, Rutherfordton:
There is very little good-roads sentiment now, but it is increasing.

ROWAN.

E. H. Miller, Register of Deeds, Salisbury:

Bonds issued? None. Our road tax is \$32,000 a year.

To be built in next 12 months? About eight miles of macadam.

Approximate cost? \$25,000.

Material? Stone.

Sentiment is strong for good roads. We are building and will build a number of miles of clay-sand roads this year. We

have about 90 miles of macadam in the county.

SAMPSON.

W. F. Sessoms, Clinton:

Bonds issued? \$10,000.

Sold? Yes.

Bonds contemplated? Yes; \$10,000.

When for sale? January 1, 1910.

To be built in next 12 months? About 40 miles.

Approximate cost? \$250 per mile.

Materials? Sand and clay.

Some opposition; sentiment generally favorable.

STOKES.

M. T. Chilton, Danbury:

Our people want good roads, but think they are not able to build. We have no towns of manufacturing interests.

SURRY.

W. W. Hampton, Dobson:

Our people are very much interested in good roads and to see the time when they will be able to commence the good work. Ours is a hilly, mountainous county, and it will be expensive to make good roads.

SWAIN.

O. P. Williams, Clerk Superior Court, Bryson City:

We have no road tax, nor have ever issued bonds for road purposes. I don't think we will ever have good roads until we levy a tax or issue bonds for such purposes. The older people are opposed to paying taxes, because they have worked the roads during their day and are not willing to be taxed, but we hope to have better road laws some time in the near future.

WARREN.

W. R. Rodwell, Warrenton:

To be built in next 12 months? Twenty-five or 30 miles.

Approximate cost? About \$200 per mile.

Materials? Gravel and crushed rock.

Our people are working along that line. We have tax for road purposes alone amounting to some \$12,000 to \$15,000 per year, and it is expended in trying to make permanent improvements to the public roads.

OKLAHOMA.

ADAIR.

A. W. Sanders, Westville:

To be built in next 12 months? Twenty miles.

Material? Rock.

Public sentiment in this county favors the building of good roads.

BEAVER.

John W. Savage, County Clerk, Beaver:
We need the roads, all right, and you want to send the papers to our County Commissioners.

BLAINE.

John M. Tyler, Watonga:

Bonds contemplated? \$50,000 by townships.

When for sale? Ninety days.

To be built in next 12 months? Thirty miles.

Approximate cost? \$50,000.

Materials? Hard dirt roads, oil and rock.

The work was first started in the county last year by the writer, and with the assistance of P. M. Sprecher and L. D. Barrows from the United States Good-Roads Commission.

CADDO.

John D. Pugh, Anardarko:

To be built in next 12 months? It is

hard to say, as we have a new road law that has not been tested yet, and can't tell much about it until we give it a test.

We are strongly in favor of good roads, and it is the intention of the various portions of the county to form road districts and vote bonds, but we will not get to the bond deal until perhaps at the expiration of the present fiscal year.

CHEROKEE.

J. B. Moore, County Surveyor, Tahlequah:

Bonds issued? We expect to issue bonds for roads, but I can't say just how much or when. I have been unable to get the issue before the people.

To be built in next 12 months? At the present time we are only working the four days per capita for those eligible for service and with an additional tax levy of three mills.

I think the sentiment of the people is favorable to the building of good roads, and if we can ever get the issue before them properly they will vote for bonds for roads and bridges. We have the finest road material of any county in the State. Gravel in abundance. The soil in a greater portion of the county has enough gravel in it to make it almost like macadam.

CIMARRON.

S. R. Reeves, Boise City:

This county is just being settled. It is a level-plains country. As yet the roads are good. The only trouble is the sand in some places. There is not a bridge or culvert in the county.

COMANCHE.

J. M. Haynes, Lawton:

County is building one mile of model road near Lawton as an experiment—gravel covering.

CRAIG.

R. F. Nix, County Clerk, Vinita:

To be built in next 12 months? Twenty-five miles.

Material? Oak lumber for culverts.

Almost everyone is in favor of good roads, but the people are afraid of bond propositions, having just voted down a \$70,000 bridge proposition and \$65,000 courthouse proposition.

CREEK.

Abner Bruce, County Clerk, Sapulpa:

Bonds issued? None, but election will be held October 26 for issuance of \$200,000 bridge bonds.

Am afraid the sentiment is especially against it here as long as bonds have to be issued. The farmers are stronger against it than anyone, and should be the ones to want good roads.

ELLIS.

T. W. Sumpter, Arnett:

This county has issued no bonds for road building, and it seems that the present administration will not.

GARVIN.

J. W. Twiggs, Pauls Valley:

Bonds to be issued? \$100,000 for bridges.

People are mainly in favor of stringent economy, and if good roads increase taxes, they will meet with some opposition from a certain class, but sentiment is in the main in favor of road building and general improvement in country districts, as well as in the towns.

GRADY.

J. D. Lindsay, Chickasha:

Bonds contemplated? Some talk of it. The general sentiment is very favorable, and it is my belief that when the matter is fully understood and the details and methods of procedure gotten in tangible shape, the proposition would become very popular and no difficulty in voting a bond issue be experienced.

GREER.

Floyd McNeill, Mangum:

Bonds contemplated? If the various municipalities can be prevailed upon to issue bonds, there should be a vast lot of road built in this county the coming year.

Materials? Clay on sand roads; rock on dirt roads.

I have been trying to get a good-roads movement on foot in this county for the past two years, but from the lack of funds we have been handicapped. Under the laws of our State now the townships may issue bonds for the building and improving of roads, and I am taking the pains to show the supervisors wherein it would be to the better interest of every taxpayer in his township to bond same and build good roads, as we have all the needed material at hand, and the expense of building good roads in this county would be to the minimum.

HARPER.

E. L. Hubbard, Buffalo:

Our section lines generally make good

roads, and very little expense will be incurred except the poll tax.

JACKSON.

I. M. Ashlock, Altus:

Have county teams and grader. Make levy to pay each year's expenses.

KIOWA.

C. H. Fawks, Hobart:

To be built in next 12 months? We will build several miles.

Approximate cost? Labor will be county convicts.

The sentiment is strong for good roads, and the County Commissioners are buying teams and machinery to run a continuous road gang.

LE FLORE.

S. J. Folsom, Poteau:

County has five span mules, three wagons and road tools, and is grading from Spiro west.

MARSHALL.

W. C. Campbell, Madin:

We are for good roads, first, last and all the time.

MUSKOGEE.

W. E. Looper, County Clerk, Muskogee:

Bonds issued? Our county borrowed \$14,000 from the State for the road and bridge fund for 1908.

Bonds contemplated? \$150,000 road and bridge bonds to be voted on October 5, 1909. Levy for 1909 estimated \$62,000.

Most people are in favor of good roads and bridges, and we are using our county convicts to build the roads.

OKFUSKEE.

Ed Stine, County Clerk, Okemah:

Everybody is in favor of good roads. County is new, and the development of good roads is slow, as the taxes are high and the good roads are not taken up in the way of voting. Improvement bonds have not been taken up. A great deal of work is being done in the way of poll-tax work, as two years ago we scarcely went on section lines, and now we travel them altogether.

OSAGE.

W. M. Sloan, Pawhuska:

People do not seem to be in favor of making any great improvements.

OTTAWA.

M. R. Walker, Box 98, Miami:

Bonds to be issued? Do not know, yet possibly \$100,000.

Materials? If built, will use crushed stone or chats.

The good-roads sentiment is growing, but has not yet reached a point where definite action can be taken. The members of county farmers' institutes are agitating the good-roads movement—also myself.

PAWNEE.

Frank Shoemaker, Pawnee:

Good roads are very much needed in this county; in fact, as much so as any county in the State, as this is an old county, having been organized for 13 years, and is one of the rough counties in the territory called the Cherokee strip. I would judge from the sentiment that is growing from day to day that there will be a movement started in the near future for better roads.

ROGERS.

D. W. Lipe, County Clerk, Claremore:

The County Commissioners expect to call an election soon to vote on a \$250,000 bond issue for roads, bridges and courthouse and jail.

STEPHENS.

B. A. Barnes, County Clerk, Duncan:
Bonds to be issued? \$25,000 for roads and bridges.

WAGONER.

J. E. Hildt, County Clerk, Wagoner:
Bonds contemplated? \$153,300 for roads and bridges.
To be built in next 12 months? One hundred and fifty miles.

SOUTH CAROLINA.**ANDERSON.**

Jas. N. Pearman, Anderson:
Approximate cost? \$70,000.
Materials? Sand and clay.
County sentiment is favorable.

BERKELEY.

T. W. Williams, Clerk of Court, Monks Corner:
To be built in next 12 months? About 15 miles.
Approximate cost? \$300 per mile.
Materials? Clay and sand.
Every prominent citizen is in favor of good roads. The work is being done by the chain gang, under the supervision of the County Supervisor.

BEAUFORT.

Jos. S. Claghorn, County Supervisor, Beaufort:
To be built in next 12 months? 75 to 100 miles.
Materials? Oyster shells, sand-clay and clay-sand.
Our people are anxious for good roads, and sentiment constantly growing. We have four steel bridges, ranging from 60 to 500 feet, the latter a draw. All are recent, handsome structures.

CALHOUN.

J. A. Wolfe, St. Matthews:
To be built in next 12 months? One hundred miles.
Approximate cost? \$4000.
Materials? Sand and clay.
County sentiment is very enthusiastic.

CHARLESTON.

William H. Dunkin, Clerk of Court, Charleston:
We have improved our roads a great deal in the last few years.

CHEROKEE.

J. E. C. Jefferies, Clerk of Court, Gaffney:
Bonds contemplated? The matter is beginning to be agitated, but nothing definite yet.
To be built in next 12 months? Nothing definite on foot.
Don't know what the sentiment is about voting bonds; it is just beginning to be discussed a little through the newspapers.

CHESTER.

J. E. Cornwell, Chester:
To be built in next 12 months? Very uncertain.
Approximate cost? \$300 per mile.
Materials? Sand and clay.
All in favor of good roads to be built by increased taxation, and to be built slowly and gradually, so as not to disturb labor conditions. Our roads are now being worked by our county convicts.

CHESTERFIELD.

R. E. Rivers, Chesterfield:
Bonds contemplated? Our people are discussing the question, and I think they will attempt to get the Legislature to authorize the issuing of bonds next year.
When for sale? Should the Legislature authorize the issue and the people vote favorably, it will be about two years.

Approximate cost? \$100 per mile for dirt roads and \$2500 for macadam roads.
Material? Dirt.
Good roads are desired by the majority of citizens. \$153,300 bond issue will be voted on October 18, 1909.

WOODWARD.

F. K. Tucker, Woodward:
To be built in next 12 months? No special work contemplated.

To be built in next 12 months? Possibly a few miles.
Approximate cost? \$500.
Materials? Sand and clay.
There is a very strong undercurrent in favor of good roads in this county; so strong that something will be done along that line in a year or so.

CLARENDON.

The only roads being built are by the chain gang, under management of the County Supervisor.

DARLINGTON.

C. A. Milling, Darlington:
To be built in next 12 months? Can't say, as we are opening new roads, which consumes considerable time.
Approximate cost? About \$250 per mile.
Materials? Clay and sand.
Sentiment in favor of good roads is widely growing. The roads in our county are in fairly good condition, and we are improving them all the time. Work convicts, and all steadily at work.

GEORGETOWN.

H. L. Smith, Clerk of Court, Georgetown:
To be built in next 12 months? The roads are built and repaired by chain-gang.
Approximate cost? None, except maintenance of chain-gang.
Material? Dirt.
The roads in Georgetown county are naturally good, and have been put in excellent condition during the past year by the county chain-gang. The people are beginning to appreciate good roads.

HAMPTON.

L. F. Causey, Hampton:
To be built in next 12 months? Indefinite.
Approximate cost? Indefinite.
Materials? Bedding, dirt and clay.
All approve good roads, and have taxed special tax for same. County never has been bonded.

KERSHAW.

C. Hough, Camden:
Bonds issued? \$40,000 for bridge building.
Sold? Yes.
To be built in next 12 months? About 40 miles.
Approximate cost? About \$500 per mile.
Materials? Sand and clay.
Heartily in favor of good roads. Farmers are contributing hands and teams free, and merchants are subscribing money help.

MARLBORO.

J. A. Drake, Clerk of Court, Bennettsville:
To be built in next 12 months? Something like 40 or 50 miles.
Approximate cost? About \$150 per mile.
Materials? Clay, gravel and sand.
People more alive to good roads than ever before.

OCONEE.

John F. Craig, Walhalla:
Bonds contemplated? None at present; some section of the county may in spring, 1910.
When for sale? Say June 1, if issued.
To be built in next 12 months? Probably 300 to 500 miles.
Approximate cost? \$25,000 to \$50,000.
Materials? Sand and clay.
The above is only based upon the public sentiment and general talk.

SPARTANBURG.

J. W. Martin, Spartanburg:
The people in this county are in favor of good roads, but not in favor of issuing bonds to pay for them. They want to

raise the tax levy and pay for them as the work is done.

SUMTER.

P. M. Pitts, Supervisor, Sumter:
To be built in next 12 months? Fifteen miles.
Materials? Sand and clay, when needed.
Our people are awakening to the importance of good roads. Our work during the coming year will consist in improving and straightening our present roads and laying a few miles of sand-clay roads. We have no special road fund. All work is done by county convicts.

YORK.

J. A. Tate, Yorkville:
Good-roads sentiment is growing.

TENNESSEE.

Approximate cost? \$300,000.
Sentiment favorable, as you will see by the amount of bonds issued.

HAMBLETON.

J. F. Smith, Morristown:
Bonds issued? \$200,000.
Sold? Yes; to be delivered October 1, 1909.
To be built in next 12 months? From 65 to 75 miles.
Approximate cost? About \$3000.
Materials? Rock and gravel.

The sentiment in this county is strongly in favor of good roads, as this issue of bonds makes \$300,000 issued for pike roads.

HAYWOOD.

W. W. Dupree, Brownsville:
The sentiment as to good roads is being agitated, but do not know what it will develop.

JACKSON.

G. Lee McClasston, County Court Clerk, Gainesboro:
Approximate cost? \$500 per mile.
Material? Stone.
We have a very strong sentiment in favor of good roads, but the majority, I think, are not in favor of building them at present. We are aiming to have the October Quarterly Court to order an election to be held and let the people vote on the question of building good roads.

JOHNSON.

L. B. Morley, Clerk County Court, Mountain City:
I, as clerk of the County Court, have made speech after speech to our County Court in regard to good roads. I have reported that there is not a mile of good road in this county. I think we are getting in shape to vote bonds. We can't do it for nearly two years, as we have to have permission from our State Legislature to vote bonds.

LEWIS.

J. G. Rice, Hohenwald:
Very little good-roads sentiment.

MACON.

W. H. Smith, County Clerk, Lafayette:
My county is not ready to commence the good work of building good roads. They are waking up to the matter more and more, and in a few years will have become interested enough to issue bonds for that purpose, but will not this year.

MONROE.

W. A. Ghormley, Madisonville:
When for sale? January, 1910, if voted.
To be built in next 12 months? One hundred and fifty miles are proposed; graded.
Approximate cost? \$100,000.

BEDFORD.

P. C. Steele, Shelbyville:
To be built in next 12 months? About 8 or 10 miles.
Approximate cost? About \$500 per mile.
Material? Limestone.
Public opinion is growing rapidly in favor of good roads. We work our county convicts on our roads, and are building from 6 to 10 miles every year.

BENTON.

W. D. Cooper, Camden:
The sentiment is fast increasing in favor of a bond issue for good roads. Our county is small, and has no wealth, except its farms and town property in three small towns, and a bond issue is quite a bug-bear to a great many, but in my opinion it is only a question of a few years, and our county will get in line and go to building roads.

BRADLEY.

Jacob Smith, Cleveland:
We have about 175 miles of improved roads in Bradley county.

CARTER.

J. R. Burrow, Elizabethtown:
Bonds contemplated? \$150,000.
When for sale? Can't say.
To be built in next 12 months? None.
Material? Stone, if any.
We have an election called for October 14, 1909, to vote on \$150,000 bond issue for roads. Great opposition. Don't think it will carry, which explains answer above.

CLAY.

V. B. Maxey, County Court Clerk, Celina:
A minority favor good roads, but for lack of education as to the importance of good roads, we are not ready to vote upon the question of a bond issue, as it would in all probability be defeated. We who favor such a scheme are hoping our people will become better educated in the near future and help themselves and help the county by bettering the condition of our almost impassable excuses for roads.

DECATUR.

Guy Tarbro, Decaturville:
To be built in next 12 months? Five or six miles.
Approximate cost? \$1000 per mile.
Material? Gravel.
The people are generally in favor of building good roads.

GREENE.

G. W. Click, Greeneville:
Bonds issued? \$300,000 in past 18 months.
Sold? Yes.
To be built in next 12 months? About 200 miles will be graded by the above expenditure.

Material? Dirt.

A growing sentiment, but possibly the bond election will fail.

MOORE.

W. J. Morris, Lynchburg:

I am sorry to say that this county is behind in road-making. The roads are being worked under the old system of the assessment of a number of days each year on all persons over the age of 21 years and under 45, with a small tax levy on property. However, the people are waking up on the subject of good roads, and I believe in the near future our plan of road-working will be changed for the better. We need road machines and a greater tax levy for road purposes.

MORGAN.

H. W. Summer, Wartburg:

To be built in next 12 months? None; but repairing.

Approximate cost? Cost of repairing, \$10,000.

Materials? Dirt and stone.

The sentiment in this county in favor of good roads is in the minority. The majority cling to the fear of heavy taxation. The county has a bonded indebtedness, but the bonds were sold more than a year ago.

PUTNAM.

D. C. Gossage, Cookeville:

Bonds issued? \$150,000.

Sold? Yes.

Bonds to be issued? There will be no other bonds issued until about 1911.

To be built in next 12 months? About 75 miles.

Approximate cost? \$20,000.

The citizens of Putnam county seem to be very much enthused over the good-roads proposition. If the present money appropriated is judiciously expended, there will be no trouble in voting another \$150,000 good-roads bond.

Sharp and Harmon, engineers in charge, Cookeville:

Putnam county has now \$150,000 available for improved highways, with the privilege of issuing \$100,000 more of bonds for the purpose as soon as 75 per cent. of the money derived from the first issue has been spent. The work is being done by the Bluffton Construction Co. First-class macadam, chert and gravel roads are being built. The streets of Cookeville are also to be improved.

SULLIVAN.

F. G. Phillips, Bristol:

Bonds issued? \$200,000.

Sold? They have been.

Bonds contemplated? \$100,000 in next year.

To be built in next 12 months? About 75 miles.

Approximate cost? About \$3300.

Material? We have good limestone.

About 12 months ago this county voted \$100,000 road bonds. We are now building with this. Will finish up 25 miles with the fund. The court authorized the commissioners to sell \$200,000 more when they have finished, and will let contract on October 9 for about 65 miles.

SUMNER.

Harris Brown, County Clerk, Gallatin:

To be built in next 12 months? Ten miles.

Approximate cost? \$10,000.

Material? Stone.

We are spending about \$15,000 yearly in building good roads. Have several stone crushers and graders, and our roads are improving rapidly.

WAYNE.

J. W. F. Roberson, Waynesboro:

Only a few of the leading farmers advocating the good-roads movement, but sentiment is growing.

WILLIAMSON.

H. D. Jefferson, County Surveyor, Franklin:

A healthy sentiment in favor of good roads is being developed, but not yet matured to the extent of making any material progress. We have been riding on the ground slide of conservatism for quite a while. When we get on the wheels of progress and are not afraid to go into

ANGELINA.

J. W. Bond, County Clerk, Lufkin:

Bonds contemplated? Question has been agitated.

Materials? Clay and sand.

County sentiment needs fortifying by some demonstration.

BEE.

Dan Troy, Beeville:

Bonds contemplated? The auto owners are trying to get up some new road interest, but are not meeting with much success.

BELL.

W. S. Shipp, County Judge, Belton:

Bonds to be issued? Temple is figuring on voting on \$250,000 some time soon; cannot say what will be the result.

When for sale? Cannot say; not voted yet.

To be built in next 12 months? Cannot say.

Approximate cost? If built will be \$2000 to \$3000 per mile.

Materials? Crushed rock and gravel.

A majority of the voters in Bell county are, in my judgment, opposed to bond issues for good roads. If they are ever voted, it will be after the people are educated along this line; they are all intelligent, but are opposed to bond issues generally.

BEXAR.

Frank R. Newton, Courthouse, San Antonio:

Bonds to be issued? No direct action is contemplated by the officials, but some or all would be in favor of issuing bonds.

The sentiment of the people is very strongly in favor of good roads, as we have now some 170 miles of first-class gravel and macadam roads, of which the people are justly proud. They want more good roads.

BLANCO.

Claud Gray, Johnson City:

The sentiment is fairly good, but the county expends about \$3000 per year from the 15-cent road tax and bond issue would not carry, as there is no prospect at all.

BORDEN.

J. S. Weatherford, Gail:

The sentiment of the people is for good roads, but I do not think there will likely be any built in the next 12 months.

BOSQUE.

D. J. Cuthbert, County Clerk, Meridian:

We have had an election for bond issue, and it failed to carry.

BROWN.

D. M. Scott, Brownwood:

Bonds issued? \$100,000.

Sold? Yes.

To be built in next 12 months? All that \$100,000 will build.

debt for substantial improvements, then you will hear from us.

WHITE.

W. L. Ditrell, Sparta:

Bonds issued? \$60,000.

Sold? Yes.

To be built in next 12 months? Sixty miles.

Approximate cost? \$110,000.

WILSON.

H. L. Coe, Lebanon:

Bonds to be issued? No, but the road question is being very favorably discussed.

The sentiment is growing daily. What roads are being built are by convict labor.

TEXAS.

Materials? Gravel, crushed rock, etc. County sentiment is divided.

CAMP.

F. H. Goodjohn, County Clerk, Pittsburg:

Our people want good roads, but seem not to want to vote the bonds. We are, however, expending a good deal of money on roads, and we are working up a sentiment that will eventually favor the issuing of bonds.

CASS.

I. E. Lanier, Linden:

The roads in our county have been kept up by the road hands that lived on each section of the road, but there seems to be a move on foot to have better roads than we have got. Don't know whether or not we will issue any bonds for the present; I think not.

CASTRO.

Edgar S. Ireland, Dimmitt:

We have excellent roads without issuing bonds.

COLLIN.

J. L. Franklin, McKinney:

To be built in next 12 months? 1000 miles.

Approximate cost? \$60,000.

Materials? Black dirt and gravel.

There seems to be a general desire for good roads, but our people are averse to the issuance of bonds. We use mules, but are of opinion that steam or gasoline engines will be more economical for pulling graders. Gasoline is perhaps the best.

COMAL.

Fred Tausch, New Braunfels:

We are in favor of good roads, and the county levies taxes for that purpose. Many miles of road are graded thoroughly.

COOKE.

J. R. Jordan, County Clerk, Gainesville:

Bonds issued? \$100,000.

Sold? We hope to have the bonds on the market in less than a month.

To be built in next 12 months? Fifty miles.

Approximate cost? \$100,000.

Material? Crushed rock.

CROCKETT.

Tom Nolen, Ozona:

We have some of the best natural roads in the world, and we expend some money in keeping them cleaned up and in good shape, but that is all. There are no built roads in our county.

DALLAM.

W. C. Denton, County and District Clerk, Dalhart:

Bonds contemplated? County none; city of Dalhart may.

When for sale? January of next year.

To be built in next 12 months? New country; not much road building. This is a level prairie county, and the roads are fine as they are now.

DEAF SMITH.

W. M. Cogdell, Hereford:

This is a high altitude, and, as a rule, our roads need no attention, so long as we are not thickly settled. We have broad, beautiful prairies, level and of solid nature, and, as a rule, smooth.

DENTON.

W. T. Bailey, County Clerk, Denton:

Bonds contemplated? Some talk of an election, but no election has as yet been ordered.

Sentiment has been pretty evenly divided, but think it is growing in favor of good roads.

DICKENS.

County Clerk, Dickens:

Bonds to be issued? \$50,000.

When for sale? In about six months, if issued.

To be built in next 12 months? Thirty miles.

Approximate cost? \$53,000.

County sentiment is good in favor of good roads.

DIMMIT.

J. D. Spear, Carrizo Springs:

Bonds issued? \$30,000.

Sold? \$15,000 sold.

To be built in next 12 months? About 60 miles.

Approximate cost? Including bridges, \$500 per mile.

Material? Clay, I suppose. Rock is not easy to get, and we will use mostly clay.

EL PASO.

Park W. Pitman, El Paso:

Bonds issued? \$250,000.

Sold? Yes.

To be built in next 12 months? Twenty-five miles.

Approximate cost? \$250,000.

Materials? Rock and asphalt.

FAYETTE.

R. Klatt, Legrange:

To be built in next 12 months? Five miles.

Approximate cost? \$15,000.

Material? Gravel.

FORT BEND.

C. D. Myers, Richmond:

Bonds contemplated? The matter has not yet come before the Court.

To be built in next 12 months? About 75 miles; cutting new roads has been allowed by county.

Approximate cost? Unable to say.

The good-roads movements are in their infancy, but the people are beginning to demand good roads, and there is now a movement to build a road of crushed shell from the town of Richmond to the intersection with the Harris county shell road out of Houston. The precincts through which this road runs are thinking of voting bonds to build same.

FRANKLIN.

Charles R. Devall, Mt. Vernon:

Interest is awakening, but nothing tangible has been done so far. Considerable sentiment in favor of a road tax.

FREESTONE.

C. B. Grayson, Fairfield:

The town of Teague, in this county, is talking of building good roads out of the town each direction for a few miles, but have not yet voted on the matter.

GALVESTON.

George F. Burgess, County Clerk, Galveston:

Bonds issued? \$50,000 worth voted by 4 to 1 on October 12.

To be built in next 12 months? Cannot say, as the bonds have to be printed, approved, signed and sold.

County sentiment is best expressed in the results of the election.

GREGG.

D. Shaw, Longview:

Bonds issued? None; we levied 15 cents additional road tax.

To be built in next 12 months? Thirty-five miles.

Approximate cost? Can't tell, as we are increasing our force.

Materials? Clay and sand.

HALL.

S. G. Alexander, County Clerk, Memphis:

This is a new county. Not much road building yet.

HARRIS.

A. E. Amerman, County Judge, Houston:

Bonds issued? October, 1907, \$500,000; September 3, 1909, \$500,000.

Sold? First issue has been sold; second issue now for sale.

To be built in next 12 months? About 50 miles out of second issue.

Materials? Shell and rock and gravel.

County sentiment is very much in favor of good roads. Voted taxes for two issues within a year, aggregating \$1,000,000.

HARRISON.

H. T. Lyttleton, County Judge, Marshall:

To be built in next 12 months? About 50 miles.

Approximate cost? \$10,000.

Materials? Clay and sand.

Everybody is in favor of road improvement, but there is scarcity of material for macadam roads, together with the extent of the mileage and the inadequate present taxable basis, have so far rendered it not wise to issue bonds. For the present we are confining our work to grading the main thoroughfares, and mingling sand and clay to meet present requirements. The county is rapidly improving, and we expect within a few years to be able to float a bond issue sufficient to surface these roads with a hard material. Our present force is Road Gang No. 1, working 25 or 30 convicts; traction engine; 18 mules, with all necessary wagons and tools, and Road Gang No. 2, working hired labor.

HASKELL.

Joe Irby, Haskell:

To be built in next 12 months? One hundred miles.

Approximate cost? \$30 per mile.

Material? Dirt grade.

HEMPHILL.

O. R. McMordie, Canadian:

Bonds issued? \$10,000.

Sold? Yes.

To be built in next 12 months? Cannot say how much.

Our people want good roads.

HIDALGO.

A. E. Chaney, Chapin:

Everyone is in favor of good roads.

HILL.

R. W. Hunt, County Auditor, Hillsboro:

Bonds contemplated? An election has been ordered to take place to determine whether or not \$250,000 bonds shall be

issued in Justice precinct, this county. There is some doubt as to the probable result.

To be built in next 12 months? If bond issue carries, something like 80 miles.

Approximate cost? About \$250,000.

Materials? Concrete gravel and white rock.

JACK.

M. G. Neims, Jacksboro:

To be built in next 12 months? Can't estimate, as we have a road gang at work all the time, outside of what the overseers and hands do.

Materials? We are only using grading outfit, but we have an abundance of good lime rock, which, when crushed, makes fine roads.

County sentiment is favorable. We are using crushed limestone on our streets, which makes fine roads.

JEFF DAVIS.

James Stewart, Fort Davis:

To be built in next 12 months? Most all our roads are good natural mountain roads.

All are in favor of good roads. Automobiles are now as thick as flies, and, of course, the sentiment in favor of good roads is increasing. We have a county superintendent of public roads, and he has a gang of men at work nearly all the time, keeping our roads in repair.

JEFFERSON.

B. F. Quicksall, County Clerk, Beaumont:

Bonds issued? \$300,000 bonds issued September, 1907. The money is now being spent. Since that time we have built about 50 miles of shell road.

To be built in next 12 months? Twenty miles.

Approximate cost? \$5000 per mile.

Materials? Shell (clam and oyster); crushed rock.

The sentiment in favor of good roads is very strong, but good material for construction is not very accessible, the shell supply being almost exhausted.

JOHNSON.

B. B. Barnes, County Clerk, Cleburne:

The sentiment is in favor of good roads, but, on account of drouth, no bonds are likely to be voted on soon.

JONES.

M. P. Myers, District and County Clerk, Anson:

We have good roads, and are making them ourselves, as we have about \$3000 invested in road graders.

KINNEY.

Charles Kartes, Brackettville:

Considerable work will be done this year, and some \$12,000 will be expended. Road building in this section is crude; the good-roads movement has not extended this far yet.

LAMAR.

Sam C. Johnson, Paris:

There is quite a good-roads spirit worked up in this county. Have built several miles of sample sand and clay roads; have a mile now under construction and proposition for more. The approximate cost of that being built and to be built is about \$1000 to \$1200 per mile, built by the county with private subscriptions.

LAMPASAS.

J. E. Morgan, County Clerk, Lampasas:

Materials? Stone, gravel, sand, soil, etc. Lampasas county levies an annual ad valorem road tax, and the same is collected and used for road purposes. There-

fore, it is not necessary to issue bonds for improving public roads. The county also works misdemeanor convicts on roads.

LA SALLE.

G. H. Knaggs, Cotulla:

Our roads are being improved at all times. Our county owns its own grading outfit, and keeps it constantly at work improving the county roads, the cost and expense of so doing being paid out of the taxes collected for said purpose.

LAVACA.

County Clerk, Hallettsville:

No road bonds have been issued, and none are contemplated. Commissioners' Court has charge of roads, and works on old plan.

LEON.

J. S. Weakley, Centerville:

Bonds contemplated? It has been talked, but do not believe will issue.

To be built in next 12 months? We are eight and one-quarter miles from railroad, and the people are figuring on grading a good road to the nearest station.

Material? Clay.

More talk than ever before concerning good-roads propositions.

LLANO.

T. W. Alexander, Llano:

To be built in next 12 months? Probably \$5000 will be spent in reconstruction of old roads.

Material? Nothing but such as may be found upon the ground.

Sentiment favorable to general improvement in public roads of county, which are now very bad.

McLENNAN.

W. C. McCollum, Waco:

To be built in next 12 months? Hard to approximate, as it depends greatly on local interest manifested in that particular locality.

Material? Gravel.

Sentiment is strong, and considered to be increasing in favor of better roads.

McMULLEN.

E. J. W. Booth, Tilden:

To be built in next 12 months? Fourteen miles.

Approximate cost? About \$30 a mile.

Material? Only need in this county is to grade.

County sentiment is good. We have a black soil that only needs grading to make good roads; of course, there is a little sand, but not enough to bother.

MEDINA.

Aug. Kempf, County Clerk, Hondo:

Everybody is in favor of good roads.

MILLS.

R. J. Atkinson, Goldthwaite:

The sentiment is favorable to bond issue.

MONTAGUE.

J. C. Strong, County Clerk, Montague:

The sentiment is very much in favor of good roads.

MONTGOMERY.

W. F. Griffin, Conroe:

Bonds contemplated? Being agitated; about \$100,000.

To be built in next 12 months? Twenty-five miles.

Approximate cost? \$1000 per mile.

Material? Nature dirt.

County sentiment is in favor of good roads.

MORLEY.

W. A. Walton, Matador:

Bonds to be issued? Yes; \$25,000.

When for sale? In about 60 days.

To be built in next 12 months? Seventy-five miles.

Approximate cost? \$25,000.

Materials? Clay and gravel.

The best expression was in the result of the election, when it was found that only 16 votes opposed the issuance of road bonds.

ORANGE.

O. R. Sholars, County Judge, Orange:

Bonds to be issued? Maybe next year.

When for sale? About one year.

To be built in next 12 months? About 100 miles.

Approximate cost? \$150 per mile.

Material? Dirt.

Our people want good roads. We have a level country, and when a road is properly graded, it stands up well with shell or gravel. The dirt packs. We need drainage more than grading.

PARKER.

G. L. Young, County Clerk, Weatherford:

Generally, the sentiment seems to favor road building, but owing to the short crops this year and tightness of finances, it seems that the sentiment of the majority of the people, especially the farming class, who constitute the larger part of our population in this county, is not in favor of the proposition of voting bonds, especially at this time. There has been no move to have the question submitted in the other two road districts of our county, and from all indications I would advise that no bonds will be voted by this county for some time, possibly two years.

PECOS.

Frank Rooney, County Clerk, Fort Stockton:

There is a strong and growing sentiment for good roads, and this matter will be actively taken up in the very near future.

POTTER.

Frank Wolfen, Amarillo:

Approximate cost? \$5000.

Material? Dirt.

County is settling up and road-making is increasing every year.

ROBERTSON.

Ben C. Love, Franklin:

To be built in next 12 months? About 60 miles.

Approximate cost? About \$300 per mile.

Material? Clay.

Good-road building is in its infancy, and think that in course of few years we will be issuing bonds for these needed improvements.

RUSK.

Lou A. Smith, Henderson:

To be built in next 12 months? Fifty miles.

Materials? Earth and lumber.

There is some agitation about bonds for roads. Do not know what this will amount to.

TARRANT.

L. F. Parkins, Clerk Commissioners' Court, Fort Worth:

Election on \$10,000 bond issue for good roads held August 17. Defeated about 3 to 1.

TOM GREEN.

James B. Keating, San Angelo:

Sentiment for good roads is strong.

TRAVIS.

Paul M. Deats, Austin:

Bonds issued? \$150,000.

Sold? Yes.

UPSHUR.

J. W. Willeford, Gilmer:
Materials? Sand and gravel.
Our people are just beginning to work on the roads.

WALLER.

Robt. McDade, Hempstead:
Bonds contemplated? \$25,000. The bond issue is in Precinct No. 1, to be voted on in next 30 days.

WHEELER.

H. M. Wiley, Wheeler:
Material? Sand.
New country; just settling up.

WICHITA.

W. A. Reid, Wichita Falls:
Bonds contemplated? Are beginning to educate the people in building good roads, but no bonds will be issued this year.
Material? Gravel.

WASHINGTON.

O. A. Seward, County Clerk, Brenham:
There has been an effort made to induce our people to vote a bond issue. The sentiment is very much divided on the subject, and the friends of the measure are afraid to submit the measure now. We

VIRGINIA.**ALEXANDRIA.**

Geo. E. Garrett, St. Elmo:
Bonds contemplated? Yes; \$400,000.
When for sale? Undetermined.
To be built in next 12 months? Dependent upon bond issue.
Material? Macadam.
Sentiment is strongly in favor of permanent road improvement, of which there are 72½ miles. The matter of issuing bonds will doubtless be decided at an election to be held this fall.

ALLEGHENY.

J. J. Hobbs, Covington:
Bonds contemplated? Vote to be taken on question of borrowing money for building of bridges in Clifton District.
We have probably as good roads as can be found in the State, but there is a general demand for better ones, and especially for a larger number of bridges over the streams of the county, many of which are frequently unfordable.

AMHERST.

W. E. Sandidge, County Clerk, Amherst:
This county issued and sold \$80,000 road bonds about two years ago, and contracted for the construction of 21 miles of macadam (the State furnishing convict labor, estimated to be 40 per cent. of the whole cost of road). About one-half of this road has been completed, and other half is now being built. There is a strong sentiment in favor of good roads, and when above contract is completed, doubtless other bonds will be issued and more roads built.

AUGUSTA.

John Crosby, Staunton:
To be built in next 12 months? Eight or ten miles.
Approximate cost? \$4000 per mile.
Materials? Stone, macadam.
The general sentiment is for good roads. Very few people oppose the measure.

BATH.

F. L. LaRell, Warm Springs:
Our people are in favor of good roads, but opposed to bond issue, preferring to improve slowly, as the county is able to do without bond issue. Our county has improved its roads very much in the last few years, and has built several steel bridges. One is now under contract.

have had several very dry winters, and people seem to forget the bad conditions. I am afraid the good roads are a long way off. We are at work all the time on our dirt roads.

WILBARGER.

E. L. McHugh, County Clerk, Vernon:
All want good roads, and are working the roads with road-tax money now authorized by law.

WISE.

H. E. Brady, County Clerk, Decatur:
To be built in next 12 months? Fifty or 100 miles.
Materials? Gravel and clay.
The people are aiding the building of roads by private subscription. The total valuation of taxes is about \$13,000,000. A road tax of 50 cents on the \$100 valuation is assessed. About \$40,000 is spent upon roads annually.

ZAVALLA.

James T. Peace, Batesville:
Bonds to be issued? Yes; \$12,000.
When for sale? As soon as record is approved.
Zavalla county contemplates building three steel bridges.

BEDFORD.

S. H. Price, Treasurer, Bedford City:
To be built in next 12 months? Three miles, without bond issue.
Approximate cost? About \$4000.
Material? Limestone, I guess.
There is some growing feeling in favor of good roads.

BRUNSWICK.

R. Turnbull, Clerk, Lawrenceville:
Our people are in favor of good roads, but not in favor of bonding the county for that purpose until it is ascertained what kind of road it is best to build by actual experiment. The county authorities are doing what they can to improve the roads, but I think no definite system of working the roads has yet been agreed upon.

BUCKINGHAM.

W. J. Hubbard, Buckingham:
Bonds contemplated? Yes; \$10,000.
When for sale? Some time next year.
To be built in next 12 months? None.
Approximate cost? From \$3000 to \$4000 per mile.
Material? Don't know. Suppose trap or granite, as we have an abundant supply of both in the county.
General sentiment of the county is in favor very decidedly for good roads, but as it is a large county and sparsely settled, we will have to go slow about it to prevent taxation from becoming burdensome.

CAMPBELL.

C. W. Woodson, Deputy Clerk, Rustburg:
To be built in next 12 months? Five miles.
Approximate cost? \$20,000.
Material? Macadam.
On the rise all the time. County is conducting a series of experiments with sand-clay and soil-clay roads with a view of ascertaining cost, durability and which road is best suited to the section. About five miles of macadam built last year.

CAROLINE.

E. R. Coghill, County Clerk, Bowling Green:
Materials? Gravel and sand and clay.
Sentiment is strongly in favor of good roads. Roads in better condition in the county than ever before. Don't think people would vote for bond issue at this

time, but they seem to be willing to pay a heavy road tax each year.

CLARKE.

Sam'l McCormick, Berryville:
Sentiment all right, but carrying out is a farce.

CULPEPER.

W. E. Coons, Clerk of Court, Culpeper:
Bonds issued? \$10,000.
Sold? Yes.
Bonds contemplated? Yes; \$35,000.
When for sale? January 1, 1910.
To be built in next 12 months? Ten miles.
Approximate cost? \$4550 per mile.
Material? Conglomerate rock.
People are in sympathy with road building.

CUMBERLAND.

O. Garrett, Cumberland:
Bonds contemplated? No; county has \$40,000 bonded now for railroad.
To be built in next 12 months? None; we patch.
Approximate cost? \$6000 to \$7000.
Material? Dirt or clay.
We all favor good roads, but have not the money to build them. Agitate Federal appropriations for good roads.

DINWIDDIE.

A. M. Orgain, Dinwiddie:
Bonds issued? \$102,500 ordered to issue.
Sold? \$30,000.
Bonds contemplated? Balance of \$102,500.
When for sale? Part of them during next 12 months.

To be built in next 12 months? Fifteen or 20 miles.
Approximate cost? \$30,000.
Materials? Stone and gravel.
Much enthusiasm; people thoroughly awake to their necessity and advantages.

ELIZABETH CITY.

H. H. Holt, Hampton:
To be built in next 12 months? About five miles.
Approximate cost? \$23,000. Contract has been let.
Materials? Hudson River trap rock, bare and surfacing.
There seems to be a universal sentiment toward good roads. Of the above \$23,000 to be expended in permanently repairing the above-referred-to road between Hampton and Newport News, the sum of \$6500 was contributed by private citizens.

ESSEX.

Robert Hutchinson, Supervisor, Ozeana:
To be built in next 12 months? About two miles.

Materials? Sand and clay.
I think that the citizens of this county are getting more anxious for good roads, even if they are taxed higher, if the money could be spent judiciously. As it is, we have had no engineers, and the work has been done by contractors, who have done very unsatisfactory work. Half of the two miles of road I speak of is paid for by State fund highway commissioners, and the other is paid by county.

FRANKLIN.

S. W. Carper, Rocky Mount:
The good-roads sentiment is rapidly growing.

FREDERICK.

Phil H. Goed, Winchester:
To be built in next 12 months? Two to three miles.
Approximate cost? \$400 to \$1000 per mile.

Materials? Limestone and crushed rock.

Our people favor macadamized roads if they can be built and maintained at a reasonable cost. The sentiment is decidedly in favor of real macadamized roads—not for through or trunk lines—at public expense.

GLOUCESTER.

A. T. Wiatt, County Clerk, Gloucester:
Our roads are sandy or clay. They have been much improved by use of road machines in past five years, and are now in fairly good condition. The clay hills in wet weather are generally bad. We have no stone, etc., in this county to make good roads. Oyster shells are obtainable, but quite expensive, and not much used.

GOOCHLAND.

Moses T. Monteiro, Clerk, Goochland:
County sentiment is against bond issue.

GREENE.

Z. P. Page, Stanardsville:
Sentiment is strong, but too poor to build one mile of macadam.

HALIFAX.

Gran Craddock, Houston:
To be built in next 12 months? Ten to 20 miles.
Approximate cost? \$400 to \$800 per mile.
Material? Gray soil.
County sentiment is growing very fast. Have about 20 miles of the finest road made of this gray soil. This road is built under the auspices of the State Highway Commission at Richmond, Va.

HENRICO.

Samuel P. Waddill, Clerk County Court, Richmond:
No bonds have been issued in this county for road-building. An election was held last January upon the question of an issue of \$300,000 and the proposition was voted down. Some 17 years ago the county commenced the improvement of its roads; it purchased teams and employed a force of hands in each of the magisterial districts, and the force and teams have been kept constantly employed since that time, with the result that this county has perhaps the best roads of any county in the State, and they are, under the system, constantly improving.

For the purpose of opening new roads and the improvement of existing ones the sum of \$30,000, approximately, is being annually spent. In addition the county has availed itself of the provisions of the recent law enacted by the Legislature giving State aid, the counties being required to supplement it by an amount equal to the sum paid in by the State. Six miles of roadway are being built at this time under this plan. We have no regularly employed engineer, but have the services of the State engineer.

I should judge that beyond the roads being improved under the State aid plan, at a cost of \$1000 to \$1200 a mile, at least 12 miles will be permanently improved by graveling, grading, etc. You will understand the sense in which the word permanent is used. In addition the board of supervisors constructs annually entirely new roads with its force of teams. There is a strong sentiment among our people for improved roads.

Of the roads being constructed by State and county aid, four miles have been let, at a cost of, say, \$1800 per mile, and two miles, macadam, at a cost of, say, \$6500 per mile.

During the past summer the experiment was made of oiling seven miles of roadway, and Mr. Grant, the supervisor, expresses himself as pleased with the trial.

HIGHLAND.

J. Cliff Matheny, Monterey:
Material? Sand.

Good healthy road sentiment. Need some jogging, and would possibly develop into a good-roads move. Likely a small bond issue, but not to an extent that would count for anything. Our county roads are improving gradually with the yearly tax, economically managed, yet there is a decided clamor for good roads.

JAMES CITY.

T. H. Geddy, Williamsburg:

There is some sentiment in this county for good roads, which we hope to develop in 1910, but nothing special has been done in this direction as yet. We built eight miles of road, three of which are macadam and five sand and clay. This road was built in 1907 at a cost of about \$6000, and with convict labor.

KING AND QUEEN.

Wm. F. Bagby, King & Queen Court-house:

Our county has no perfected plan for permanent road improvement as yet.

KING WILLIAM.

B. C. Garrett, King William:

Our county is located in the Tidewater section of the State, with no rock convenient to make permanent roads. A railroad comes through the extreme end, hence to get the rock and haul it to the road would cost not less than \$8000 to \$10,000 per mile. We have about 300 miles of public roads. The assessed value of all property in our county is about \$1,750,000. Our total State and county taxes are about \$18,000 to \$20,000 yearly. Now, to bond the county and pay the interest and have a sinking fund to take in the bonds when due is entirely out of the question with us. Our property will be confiscated by tax levies. We are paying all the taxes our people can stand, and we must content ourselves with our dirt roads. Capitalists, good-roads machinery men, automobile men and people who pay no taxes and have no property, and the real-estate men, are the principal men agitating this question. Poor, ignorant farmers do not know what they are doing by favoring this bond issue.

LANCASTER.

Wm. Chilton, Lancaster:

Bonds contemplated? The question will probably be submitted to vote of the people.

To be built in next 12 months? Eight miles.

Approximate cost? About \$300 per mile.

Materials? Sand and clay.

The good-roads question is agitating the minds of the people as never before. Eight miles of road have been surveyed by the representative of the State Highway Commission to be permanently improved, the State and the county to share the cost equally, and if this sample shall measure up to the expectations of the people, I do not doubt that a large bond issue will be voted for the permanent improvement of all the main thoroughfares in the county.

LOUISA.

Jesse J. Porter, Clerk Circuit Court, Louisa:

We are organizing a Good Roads Association in Louisa county, and this county is now building a sand and clay road of some seven miles in length at a cost of about \$500 a mile. We have finished about two and one-half miles, and it is an excellent road. Most of our people are in favor of good roads, and I think that by next year we shall have a Good Roads Association at work. We have spent sev-

eral thousand dollars this year in repairing the roads, and as a general thing they are in good condition, and the road running through this county from Charlottesville to Richmond is in fine condition.

LEE.

H. C. T. Ewing, Clerk, Jonesville:

Bonds contemplated? Yes.

When for sale? Don't know.

To be built in next 12 months? About five miles.

Approximate cost? \$12,000.

Material? Limestone rock.

County sentiment is very good.

LUNENBURG.

Jno. L. Yates, Lunenburg:

Bonds contemplated? Matter being considered now.

The matter of the Capital Highway, which is contemplated being run through our county, has been before our board and discussed, but as yet no action has been taken, except to assure the authorities that they would do what they could to aid in the matter, and no doubt if the route through this county is established that the county will issue bonds or a vote will be taken thereon. The sentiment of our county is somewhat divided on this question.

MATHEWS.

Sands Smith, Mathews:

The question has not been agitated to any great extent.

MECKLENBURG.

H. F. Hutcheson, Boynton:

Bonds issued? \$110,000—\$60,000 in Chase City District and \$50,000 in Clarks-ville District.

Sold? Yes.

Bonds contemplated? Yes; Boydton and Chase City Districts are thinking of issuing bonds for permanent road improvements.

When for sale? Certainly not before next year.

To be built in next 12 months? Forty-six miles in Clarksville and Chase City Districts will certainly be built.

Approximate cost? About \$3000. The State will augment the funds subscribed by the districts.

Material? Rock.

Sentiment for permanent road improvement is growing rapidly. We have an inexhaustible quantity of rock well suited for road building.

MIDDLESEX.

F. M. Eastman, Saluda:

Roads are fairly good in Middlesex. The good-roads boom has not reached us yet.

MONTGOMERY.

G. W. W. Wilson, Christiansburg:

To be built in next 12 months? One mile.

Approximate cost? \$6000; contract price.

Material? Stone.

They want good roads, but the roads are generally badly located, and everybody wants good roads, but wants them located on other folks' property. Don't want any State Highway Commission roads at \$6000 per mile.

NANSEMOND.

R. R. Smith, Clerk of Circuit Court, Suffolk:

To be built in next 12 months? Eight miles.

Approximate cost? \$8000.

Materials? Sand and clay.

Our people want good roads, but are opposed to a bond issue for that purpose.

NORFOLK.

Alvah H. Martin, Chairman Permanent Improvement Commission, Portsmouth:

Bonds issued? \$200,000.

Sold? Yes.

To be built in next 12 months? About 30 miles.

Approximate cost? \$200,000.

Materials? Stone (macadam).

Norfolk county is the first in the State to start off with a bond issue of any considerable size for road purposes. The money is being expended by a board known as the "Permanent Improvement Commission of Norfolk County."

ORANGE.

C. W. Woolfolk, Orange:

Bonds contemplated? Yes; \$25,000.

When for sale? Within the next six months.

To be built in next 12 months? Six or eight miles.

Approximate cost? From \$3500 to \$4000 per mile.

Material? Stone.

Sentiment in favor of good roads is growing in this county, as the people are beginning to realize the benefits from the 8 or 10 miles we have recently built.

PAGE.

H. W. Weaver, Luray:

We have just let contract for two bridges, the cost of which complete will be \$22,000. Until this is complete we will not take up the question of roads.

PITTSYLVANIA.

S. S. Hurt, County Clerk, Chatham:

To be built in next 12 months? About four miles.

Approximate cost? About \$20,000.

Material? Rock.

Money raised from taxes for general county fund.

POWHATAN.

James A. Tilman, County Clerk, Powhatan:

We have about 250 miles of public roads in this county. They are fairly good in the summer season, but the soil being red clay, they are in many places almost impassable in the winter months. The citizens are anxious for a better system, but nothing is being done. This is a small county; the road levy annually is less than \$2000. No bonds have been issued. We work the roads under the old system of 40 years ago.

PRINCE GEORGE.

W. D. Temple, Prince George:

There is a very general sentiment in favor of good roads, but at this time the sentiment is against bonding the county. The attorney for the county is very much opposed to it, and is using his influence against it. The Board of Supervisors are in favor of a bond issue. The Board has raised the road tax from 20 cents to 40 cents on the \$100 value of property, and the roads in Prince George will be improved very much in the next 12 months, and I think the voters of the county will be in favor of a bond issue as soon as they see some practical results of good roads.

PRINCE WILLIAM.

Edward Nelson, Manassas:

Bonds issued? No bonds issued; 7½ cents on \$100 property levied for permanent roads.

Bonds contemplated? I don't think so. To be built in next 12 months? I can't say; very little with small tax.

Material? Crushed stone.

I think the people are in favor of good roads.

RAPPAHANNOCK.

W. C. Armstrong, Washington:

Good-roads sentiment growing.

ROANOKE.

Charles D. Denit, Clerk, Salem:

Roanoke county has spent on the roads constructed during the past 12 months \$16,860. There is now being built in the county a section of about seven miles of model macadamized road, which will cost between \$20,000 and \$25,000 in addition to the above-mentioned sum. Convicts are being used for the purpose, and the work is being done under the supervision of the State Highway Commissioner. Two steel bridges on this section will be required.

There is perhaps no section of the South where the sentiment is stronger in favor of good roads than in Roanoke. Its supervisors, officials and people generally are thoroughly alive to the importance of this subject, and all new roads being opened are constructed with a view to making model highways of them.

ROCKBRIDGE.

A. T. Shields, County Clerk, Lexington:

To be built in next 12 months? Do not know exactly, but some will be built.

Approximate cost? It varies.

Sentiment is good and gaining.

ROCKINGHAM.

D. H. Lee Martz, Harrisonburg:

Material? Limestone.

Our people are decidedly in favor of good roads, and are making arrangements at present to obtain State aid, to be supplemented by county. Besides, this county has recently purchased four rock-crushing machines, with a view to a general improvement of the roads in our county. The cost of road varies somewhat—depends upon the proximity of the material to the locality in which the work is to be done. Many of our farmers are alive to the necessity of good roads, and are willing to assist in getting material to the machines and then hauling upon road.

SHENANDOAH.

M. B. Wunder, County Clerk, Woodstock:

Materials? Principally the rock and dirt on the route.

It is awakening, it is growing, but it is to be feared that our people do not so fully appreciate the advantages of good roads as to induce them to vote for higher taxes to get them for a while yet, either directly or to pay interest on bonds. However, the growing sentiment in favor of better roads is plainly reflected in our County Board of Supervisors. Our new roads are built on petition to Board of Supervisors (heretofore) almost exclusively out of the material on the route at least possible expense. The number of miles varies greatly. How many miles will be built during the coming year it is impossible even to guess at. During the year ending July 1, 1909, between \$9000 and \$10,000 were spent on repairs of old roads, and about \$2600 on opening new ones, including several small bridges, but in addition about \$4000 was set aside to be used, when it comes, with an equivalent amount promised by the State, in building as many miles as it will of model permanent new road, and the routes therefor have been located.

SMYTH.

S. W. Kent, Clerk Circuit Court, Marion:

Bonds issued? \$2280.

Sold? Yes.

Bonds contemplated? Do not think so.

To be built in next 12 months? About three miles, under contract.

Approximate cost? \$3000 per mile.
Material? Limestone.

SPOTTSYLVANIA.

T. A. Harris, Clerk, Spottsylvania:
Bonds contemplated? Yes; \$100,000.
When for sale? Can't say.
To be built in next 12 months? Forty-three miles are in contemplation.
Approximate cost? \$100,000.
Materials? Stone and gravel.
The sentiment in favor of good roads is growing. Election will be held November 2, 1909, for a bond issue of \$100,000 for permanent road improvement.

STAFFORD.

C. A. Bryan, Stafford:
To be built in next 12 months? One and one-half miles.
Material? Clay, baked.
Old fogysm prevails.

SUSSEX.

R. D. Norris, Clerk, Sussex:
Bonds contemplated? I think not; certainly, not very soon.
To be built in next 12 months? Two miles.

Approximate cost? About \$2000 has been appropriated—one-half by State and one-half by county.

Materials? Sand and clay, I think.
I think the sentiment in this county is rather against issuing any bonds for building good roads at present, as our county already has a bonded indebtedness of \$75,000, \$71,000 of which is on account of purchase of Atlantic & Danville Railroad bonds, which are now worthless, and \$4000 for building new county jail.

WEST VIRGINIA.

BRAXTON.

E. W. Hifner, Sutton:
County sentiment is growing; the people are becoming more interested in good roads.

CABELL.

F. F. McCullough, Huntington:
To be built in next 12 months? One mile.

Approximate cost? Don't know.
Material? Brick or native stone.
County sentiment is growing stronger.

DODDRIDGE.

U. G. Summers, County Clerk, West Union:
To be built in next 12 months? Not estimated.

Approximate cost? \$22,500.
Materials? Common earth and sandstone.

We have made but little progress in road-making in this county in the past, as there has been but little system used. The roads have been heretofore made by shaping up the common earth, which adds but little to the progress of good roads.

FAYETTE.

W. B. Calder, Fayetteville:
Macadamized roads have been constructed in and between one or two of the small towns of the county. Good roads are badly needed, and the sentiment is all in favor of building one mile of good, lasting road rather than wasting money in attempting to keep in repair "natural" roads.

HAMPSHIRE.

C. W. Haines, Romney:
Materials? Slate, rock and dirt.
The Hampshire Southern Railroad is building through part of our county, and has destroyed some roads, and others in some places will have to be built. I understand that petitions are circulating to have some new roads built to intersect the

WARWICK.

W. C. Burnham, Denbigh:
To be built in next 12 months? Probably about one or two miles.
Approximate cost? Somewhere about \$4000.
Material? Shells.
Most people in this county are in favor of good roads, and we have at present very fair roads.

WASHINGTON.

P. J. Davenport, Abingdon:
Bonds issued? \$20,000.
Sold? Yes.
Bonds contemplated? About \$20,000.
When for sale? Would say any time.
To be built in next 12 months? Not more than 10 or 15 miles.
Approximate cost? \$40,000.
Materials? Macadam, limestone rock.
There is considerable interest, and the people are willing to go at it on a large scale if they can be assured by proper legislation that the money will be wisely applied.

WYTHE.

J. R. Honaker, Clerk, Wytheville:
Bonds contemplated? No; have surplus in treasury of \$40,000.
To be built in next 12 months? I think about 20 miles.
Approximate cost? About \$30,000.
Material? Crushed stone.
There is a road now being built under contract at \$13,000, and a number of smaller contracts are being pushed rapidly.

new railroad. It is more than likely that some new roads will be built during the next year.

HARDY.

C. B. Welton, Clerk County Court, Moorefield:
Hardy county has no macadam roads, but only the usual dirt roads.

HARRISON.

W. Guy Tetrick, Clerk County Court, Clarksburg:
The law in this State in regard to establishing and keeping in repair the public roads has lately been changed. The new system has not yet been tested. Pending its inauguration, not much is being done in this county in road-building. A county road engineer will be appointed this fall by the County Court.

JEFFERSON.

James K. Hendricks, Charles Town:
To be built in next 12 months? Probably 12 miles stoned; not the high-priced.
Material? Limestone.
Our county has been interested in good roads for 10 or more years, and has been spending the money each year in building stone roads; not at \$5000 or \$6000 per mile, but roads at a cost of \$800 to \$1200 per mile. The policy has been to spend as little as possible for work other than crushed stone placed on road. We have five stone crushers for that purpose in the county. We have very few who advocate bonds, and the work done is practically paid for every Saturday night. I hardly think it possible to find a county the size of Jefferson county with its wealth and number of miles of road that can equal the roads of Jefferson county.

KANAWHA.

L. C. Massey, County Clerk, Charleston:
Bonds contemplated? \$180,000.
When for sale? November.

To be built in next 12 months? Thirty miles.

Approximate cost? \$15,000 per mile.
Materials? Have not yet decided.
An election has been called in Charleston, Union and Poca Districts to raise the \$180,000 referred to above. The sentiment is very strong in favor of issuing the bonds.

LINCOLN.

W. C. Holstein, County Clerk, Hamlin:
Everybody I hear talk seems in favor of good roads, but when it comes to voting bonds to build good roads, I don't think the people will vote for it.

MINERAL.

J. V. Bell, Keyser:
Materials? If any, stone and gravel.
No movement has yet been set on foot for building any new roads; I don't know that there will be at this time.

MINGO.

James Davison, Williamson:
To be built in next 12 months? Not over 40 miles.
Approximate cost? \$15,000.
Our roads are in very bad condition. Quite a sentiment in favor of building good roads. I believe the people would vote \$100,000 for the purpose of building roads should the proposition be submitted.

NICHOLAS.

P. N. Wiseman, Summersville:
The public sentiment of this county is highly in favor of good roads. The ruggedness of many parts of the county is a hindrance to construction of such roads. The lack of proper building materials in other sections is also a hindrance; also inability of County Court under the present law to levy sufficient funds is probably the greatest drawback. This, taken together with absence of use of best methods of construction, gives us bad roads most of the year.

RALEIGH.

M. J. Meadows, Beckley:
Roads in this county are kept up by taxation and common day labor by taxpayers.

RANDOLPH.

S. A. Rowan, Elkins:
Materials? Dirt and stone, if any.
People are in favor of good roads, but opposed to bonds.

SUMMERS.

W. P. Bowling, Clerk of the County Court, Hinton:
The citizens of this county are unanimously in favor of better roads, and are very much interested on the subject of better roads.

TAYLOR.

Hayward Fleming, Clerk, Grafton:
The new road law goes into effect October 1, 1909; it is not possible to state what will be done.

TUCKER.

S. O. Billings, County Clerk, Parsons:
County sentiment, we think, is good.

TYLER.

J. W. Duty, Middlebourne:
Bonds to be issued? The town of Middlebourne will soon issue \$7000 bonds (6 per cent., 10 years), but may be dealt in locally. Begin May 10, 1910. Will expend about \$12,000, but no bond issue.
To be built in next 12 months? Five thousand eight hundred and fifty-five feet.
Approximate cost? \$24,000.
Material? Brick.
County sentiment is generally good.

UPSHUR.

Ernest Phillips, Buckhannon:
To be built in next 12 months? Repair old roads.

WOOD.

Wm. Dudley, County Clerk, Parkersburg:
To be built in next 12 months? Three to five miles.
Approximate cost? Contract not yet let.
Materials? Mostly brick.
There is a growing sentiment for building good roads, and it is very likely that a bond issue will be voted on during or within the next two years for \$350,000 to \$500,000.

WORK BEING PUSHED IN FLOYD COUNTY, GA.

[Written for the Manufacturers' Record.]

Rome, Ga., October 26.

More work is being done on the roads of Floyd and adjoining counties this year than ever before. The good-roads spirit has taken possession of the County Commissioners in North Georgia, in whose hands the improvement of roads is left, and they are thoroughly enthused on not only the desirability, but the practicability of macadamized highways.

Floyd county has 165 miles of macadamized county roads. Many of these roads, however, were built some years ago, and at the beginning of this year were found to be in need of repair. The County Commissioners, therefore, adopted a plan by which they divided the county into five districts, placing a road squad of six men in each district to keep the macadamized roads in repair. Each of these squads is equipped with a road scrape, wagon and plow and six mules.

In addition to these five maintenance squads, Floyd county is working 100 convicts on road construction. These convicts are divided into two gangs of 50 each, and are engaged in constructing macadamized highways, thoroughly graded and on the lines of the most modern road engineering. Five per cent. is held as the maximum grade, with very few of those. The entire road work of the county is in direct charge of a graduate civil engineer.

A large number of scout automobiles have recently passed through Rome and Floyd county, especially the routes between Atlanta and Chattanooga and Atlanta and Birmingham. Without exception these scouts are loud in their praise of Floyd county roads, and state unanimously that they are the best in Georgia. The official automobile route between Atlanta and Birmingham and Atlanta and Chattanooga has been accorded to Rome.

WILSON M. HARDY.

Significance of the Movement for Good Roads in the South

FIRST PRIZE ARTICLE FOR THE MANUFACTURERS' RECORD.

By FRANCIS JOSEPH KELLY of Baltimore.

At the outset it may be well to glance at what good roads mean to a community. Much could be written as to the remarkable agricultural and commercial development and spread of civilization in the older countries through the medium of improved highways, but this phase of the subject and the lessons that we in newer lands might learn from them must be passed over.

It is axiomatic that good roads are the greatest means of developing communities. The ancient Romans understood this, and they alone among the early nations appreciated the importance of an adequate system of highways in promoting civilization and developing commerce. There is no better modern illustration of the value of good roads than that of France, whose public highways constitute the great monument to the memory of Napoleon III, and which have been such a potent influence in the economic development of the nation.

Good roads mean direct monetary gain to every business man and farmer by lessening the cost of transporting his goods or his produce to the railroad or point of ultimate disposal. If it were possible to estimate the saving in time, wages, horse-power, etc., in conveying the products of the factory, farm, mine and quarry over good instead of bad roads, the money saving would be as great in one year as the entire cost of the improved roads. In South Carolina, State Commissioner of Agriculture Watson says the saving by good roads to the State cotton producers alone would be \$450,000 a year. Another authority declares good roads would effect a saving of \$500 a year in the upkeep of horses and their equipment on every farm of 240 acres. The United States Department of Agriculture estimates that over 250,000,000 tons of freight are hauled over the rural highways to the railroads alone each year at a cost of 23 cents per ton. The cost in France is 7 cents.

Reductions in the cost of farming increase the farmer's profits, add to the value of his land, give him more money to devote to the education of his children, to spend on luxuries, amusements, or in what way he will.

Good roads, by making travel easy, aid in the promotion of enterprise and the investment of capital by opening up the country and its possibilities to inspection.

They furnish a check on railroad charges, and at the same time are great feeders of railroads.

Given a system of well-laid, smooth and hardened roads, numerous power vehicles would quickly be found upon them conveying the farm, factory, quarry, mill and plantation product to the cities or to the railroads, returning laden with supplies; furnishing also easy and cheap means of traveling between points. The Southern States have in their rivers 5,000,000 horse-power—double that when the water shall be conserved—available for conversion into electric power, and enterprise will be quick to harness these streams and gridiron the country with light traction lines. The establishment and extension of good roads will result in the distribution of cheap light and electric power over wide areas, facilitating all forms of farm labor; also mills and factories. American enterprise may be expected to adopt a system of railless traction, such as has recently been introduced with success in various parts of Europe. There is no interference with the roadbed. The vehicles take their power from overhead wires, of which there are two on single lines and four on double lines, one wire conveying the power to the motors, the other returning the used current to the power-house, the wheels being shod with rubber tires. The current is conveyed from the wire to the motors by a pair of cables swung in a frame carrying two wheels in contact with the wires, a plan which allows the cars to pass to any part of the road in avoidance of other vehicles. It is said of this system that, owing to the comparative lightness of the vehicles, the surface of the road suffers less than in the case of gasoline cars with their heavy motors.

Good roads increase the attractiveness of country life and induce wealthy people to establish country residences, adding to the value of the land and lightening the taxation of the farmer while increasing his values. They mean much to the farmer, orchardist and truck grower near a city or town, enabling him to reach his market quickly and easily—a distinct advantage to the town dwellers in lowering the cost of living.

In what has been said a few of the material advantages derivable from good roads have been pointed out, but the social and moral benefits which would result are many and important. Good roads would make for a closer social relationship in rural communities, making possible more frequent visits to the city for pleasure or business. They bring the church and the school within comfortable reach, with all these benign institutions stand for in the advancement of religion, education and civilizing influences. It is significant, and furnishes a strong argument in favor of good roads, that in four States where the average percentage of improved roads is 30.55, the percentage of white illiterates is only .34 of 1 per cent. of the total population, while in four States in which only 1.51 per cent. of the road mileage is improved, the percentage of white illiterates is 4.76.

Good roads have a beneficent effect on the spiritual side of man. When setting out on a journey over a road on which the going is good the spirits rise in anticipation of an agreeable jaunt, but if the roads are rutty and broken, or hub deep in mud, or inches deep in dust, the trip is undertaken with a feeling of apprehension, and possible risk, and with grim distaste.

Good roads are the sure promoters of good temper and peace in the family. Many a man has gone home and "raised the roof" because he had "busted" a britchen or broken a spring.

Moral—Build good roads and keep the roof on.

Proceeding to a consideration of what the 14 Southern States are doing to develop their highway systems, early mention should be made of the Capital Highway, a great thoroughfare that will extend from Atlanta to Richmond, a distance of 750 miles; thence to Washington and on to New York, a total distance of about 1100 miles. The work is well advanced; so much so that a motor car reliability run will be made from Atlanta to New York in connection with the National Automobile Exhibit which will be held at Atlanta in November. Thirty counties are co-operating in the work, which will link the capitals of Georgia, the Carolinas and Virginia, Maryland and the great winter resorts of the States with Washington and New York.

The impelling force back of this fine project is the Capital Highway Association,

composed of the leading men of the States. Over 300 miles of it are finished. Fulton, Columbia and McDuffie counties, in Georgia; Lee county, in South Carolina, and Richmond, in North Carolina, have completed their links. Richland county, South Carolina; Richmond, Georgia; Wake, Vance and Granville, North Carolina, have nearly finished their quotas. Durham, N. C., is laying macadam, and with the exception of Halifax, N. C., which is using gravel, all of the counties are applying the sand-clay treatment.

The effect the construction of this great thoroughfare will have on Southern roads development will unquestionably be strong. It will open up to tourist travel new avenues of recreation, and easy access will be afforded the homeseeker, the commercial man looking for an opening, the craftsman, the miner and the investor, to the agricultural opportunities, the growing towns, the trade openings and the rich natural resources awaiting the enterprise of man. This great highway may be likened to a tree from whose huge trunk branches spreading out in all directions may be looked for, each returning in full measure of harvest and rich reward the nourishment and support the tree received from the land that raised it.

Virginia has 130 miles of finished roads, 193 miles under construction and 136 miles projected in 26 localities, all built under the impetus given road improvement by the enactment of legislation and the creation of a highway commission. Thus Virginia will have 460 miles of good roads in the immediate future, and with the new mileage surveyed or awaiting survey, will possess 738 miles at no distant date.

In 1908 \$250,000 was divided among the counties. The appropriation this year was \$329,000. Ninety counties out of 100 are taking advantage of the act. Each county may use its apportionment to pay the interest on its bonds or to retire them. Convict labor is employed, much to the improved health and better moral tone of the prisoners. Governor Swanson favors State aid from a specific source of revenue, and suggests that the railroad taxes be applied to the use of the roads. This tax last year amounted to \$289,626. Judge Mann, the candidate for the Governorship, favors aiding the counties by having the State pay the interest on their bonds, while each county should maintain its roads and establish a sinking fund to retire the bonds. He also favors the State ownership of quarries and the employment of long-term prisoners in them.

A main highway between Richmond and Washington is under way. At a meeting of the executive committee of the Capital Highway Association at Columbia, S. C., September 15 Mr. Allen Potts, vice-president for Virginia, announced that \$400,000 was in sight for the improvement of this highway. Alexandria county will build her portion of it with vitrified brick to the District line. Staunton and Augusta county will build a road across the Blue Ridge out of an issue of \$100,000 road bonds, and a road will be built from Basic City to Nelson county by public subscription and an appropriation made by the county supervisors. Dinwiddie, Orange, Lancaster and Greenville counties are issuing bonds to carry on the movement.

No one of the States is taking a more widespread interest in the creation of a highway system or has done more to establish it than South Carolina. She has not only a State Good Roads Association—under the effective presidency of F. H. Hyatt of Columbia—but numerous town and county organizations putting forth their best efforts to the common end. Out of 41,830 miles of public highway, about 6000 are finished roads of the sand-clay type, 100 miles are of shell and 200 miles macadam. Convict labor is used. The Palmetto State has neither a Highway Commission nor a Highway Engineer, but expects to have both within a few months.

The present State law imposes on the council of every city or town of 1000 inhabitants and over the duty of keeping the roads in repair. About a dozen counties are working their roads under special legislation. All males between the ages of 18 and 50 must work four days in the year on the roads or bridges or pay a commutation tax of \$3.

Supervisor S. H. Owens of Richland county, the father of the sand-clay type of road, laid down a stretch of 17 miles of road said to be as fine and fast a speedway as any in the South. The counties of Richland, Lexington, Newberry and Laurens formed a Good Roads Association in August for a good-roads campaign. The good-roads committee of the Columbia Chamber of Commerce is co-operating with a similar body in Sumter to construct a connecting road. Governor Ansel is taking an active interest in the movement. He advocates State aid, and has brought the subject before the Legislature, which is expected to take favorable action.

At Asheville, N. C., on October 5, 6, 7 and 8 a convention will be held to discuss provisions for building 300 miles of highways in the Southern Appalachian Mountains. The plan includes connecting roads through the Piedmont region of South Carolina and southward. Mecklenburg county has 180 miles of good roads, and is still building, while Gaston county voted a \$300,000 bond issue; Shelby and Lexington townships a \$100,000 issue, with many similar projects elsewhere in the State. The Virginia-North Carolina Good Roads Association, composed of delegates from the counties traversed, was organized to build a connecting road between Salisbury, N. C., and Lynchburg, Va.

West Virginia created an Office of Public Roads this year, and Charles P. Light of Martinsburg was appointed Commissioner in July. The Commissioner is invested with broad powers over State-aided roads and bridges. He holds office for four years, with a salary of \$3000 a year, and is empowered to employ adequate assistance. A State fund was created to aid the counties in road-building, and employment of convicts on the roads authorized. Special road taxes may be levied. Taxes on automobiles, fines for violating the automobile regulations, and the surplus arising from hiring out of convicts over and above \$20,000 are to be applied to the road fund. Counties may obtain aid on certain conditions, and must keep in repair all roads built with State aid. The State has not enforced the law, and no convicts are employed on the roads.

The Parkersburg-Williamstown Boulevard Association was formed in April to build a connecting road, of which 11 miles have been built at a cost of \$10,000 per mile. In August leaders in the good-roads movement from West Virginia, Ohio and Maryland assembled at Mountain Lake Park, Md., and formed an interstate association.

Kentucky has been deterred from starting a good-roads movement by restrictions of the powers of the Commonwealth and the counties. The Constitution forever prohibits the State from lending its aid to or in any way helping the counties in road-making. The power of a county to become indebted is limited to 2 per cent. of its assessed valuation, and no county can levy more than 50 cents on each \$100 worth of taxable property for any purpose whatever.

This condition led to the formation of the Kentucky Good Roads Association, with State Senator Joe F. Bosworth of Middlesboro as president and a number of influential men as members. An amendment to the Constitution was prepared which will be submitted to the voters at the November election, and if an active educational campaign through the medium of the press and public addresses has made proper impression it will become a law.

The last Tennessee Legislature created a Good Roads Commission of one member from the eastern, central and western portions of the State to "investigate and recommend" legislation for improving the roads, and also authorized an issue of \$4,000,000 road bonds. To ascertain the views of those best acquainted with the needs of the State, Governor Patterson called a good-roads convention at Nashville on September 21. The Business Men's Club of Memphis has been doing effective work by sending out circulars which begin with the incontrovertible truth that "good roads are the greatest developers of communities, whether States, counties or cities."

Tennessee has an excellent foundation for a great highway system in the antebellum toll roads, now for the most part free, which extend through Middle Tennessee and northward to Kentucky. These roads are still in good condition. The old pike from Nashville to Smithville furnishes an 80-mile automobile run that is considered one of the best in the South, and for 100 miles toward Pulaski there is a fine roadway traversing Tennessee's beautiful bluegrass country. While expectant of State assistance, the counties are not idle in improving their roads, and many are spending large sums upon them.

Authorization last year by the General Assembly of Georgia for the use of convicts on the roads gave the movement an impetus. A bill to create a Good Roads Commission was introduced in the Legislature, with a provision that its expenses should be paid out of the taxes on automobiles. Georgia is taking an active part in the movement, and public sentiment is strongly in favor of good roads. Her links in the Capital-to-Capital Highway are complete, and an extension of improved roads to the winter resorts in Florida is under discussion. Decatur county has 700 miles of macadam, which cost \$1200 per mile, being done with convict labor. Glynn, Floyd, De Kalb and Jackson counties have heavily bonded themselves to build roads.

Alabama has had a Good Roads Association for 10 years, and the gospel of improved highways has been spread among her communities earnestly and persistently. A bill introduced in the Senate by Senator Overton to create a Highway Commission and carrying an appropriation for \$10,000 for salaries and expenses is likely to become a law. The Good Roads Association comprises the 67 probate judges, five commissioners and 12 delegates from each county, and mayors of the municipalities. It will convene at Birmingham on October 14 and 15, and will be entertained by the Board of Trade. The counties are doing some road-building out of the proceeds of bond issues. The State University is arranging a course of instruction in road-making, and is adding a laboratory for testing road material.

Florida has no Highway Commission, and the State exercises no control over the roads. A few of the counties use their convicts on the highways. A good-roads measure known as the Miller bill was vetoed by Governor Gilchrist, his reasons being that the trustees had too much power and no responsibility. At a good-roads rally held in Tallahassee in July it was agreed to join Georgia in building a hard-surface road from Albany, Ga., through Tallahassee to the Gulf. Duval county will vote on \$1,000,000 bonds for road improvements; Manatee has voted \$250,000, and Clay \$250,000.

In Louisiana Governor Sanders is arousing interest in road improvement by public addresses. He advocated a working plan that has been adopted by 30 parishes out of a total of 59, which is as follows: The State furnishes an engineer, whose expenses are paid by the local community, and a sufficient number of convicts to build a road, maintained at the expense of the community. The Federal Government furnishes a good-roads expert. The Baton Rouge-New Orleans Good Roads Association was formed recently and \$5000 raised toward a fund of \$30,000 to build a road from Baton Rouge to New Orleans and from New Orleans to Port Allen. The meeting recommended that the parishes adopt ordinances providing that money intended for road purposes should be capitalized upon a 10-year basis and the amount realized spent at once; that two main highways be laid out by the State engineers and built by convict labor under the direction of Government experts. Such parishes as Ouachita, De Soto, Washington, Caddo and others are active in road-building.

Sentiment is strong in Texas in favor of road improvement and rapidly increasing under the influence of an educational campaign inaugurated by various associations in the different districts. A branch of the National Good Roads Association is established at Beaumont, and its influence is strongly felt. Beaumont and the county have a Good Roads Association of their own. The Wichita Falls Chamber of Commerce is sending out speakers with stereopticons to lecture and arouse sentiment for a bond issue; Waxahachie business men and farmers organized a similar movement in June, and Harris, Dallas, Bowie, Brown, Travis and Williamson counties are spending large amounts. Galveston county proposes to spend \$500,000 on eight roadways. The most ambitious highway project is the construction of a thoroughfare from San Antonio to New Orleans, which will pass through Beaumont and Houston. A fine shell road already connects the latter cities.

A fine example of public spirit is given by B. F. Yoakum, chairman of the Rock Island-Frisco system, who is a Texan first and after that a railroad man, in the trip he is giving to the presidents of Farmers' Unions from Texas, Arkansas, Louisiana and Oklahoma over the good roads of New Jersey, New England and New York to show them the kind of roads they ought to have in their native States. The party will start from Philadelphia on September 22, and the trip will consume four days.

In Arkansas the counties have the sole initiative in road-making, but what they undertake they do well, as exemplified by Lincoln preparing to build a 14-mile macadam road from Star City to Bayou Bartholomew at a cost of \$3000 per mile.

Mississippi's Commissioner of Agriculture, H. E. Blakeslee, is urging an appropriation by the Legislature of a sum of money to build a model road in each county, the county to provide an equal amount. A movement to arouse State-wide interest was inaugurated in July when the automobile owners of the State assembled at Jackson and formed the Good Roads and Automobile Club. It is planned to establish clubs in each county; to promote a State Good Roads Association to co-operate with the Boards of Trade and Boards of Supervisors in obtaining legislation.

Maryland, though one of the last to join her sister States in establishing a State Roads Commission, which was created last year, has entered upon the work with such

liberality of spirit as to warrant us in believing she will not lag in the good work. A loan of \$5,000,000 was authorized with a provision that not more than \$1,000,000 should be spent in any one year, and that the entire amount should be expended upon a highway system within seven years from July, 1908. The Commission is authorized "to construct, improve and maintain such public roads and highways in the several counties" "as can reasonably be expected to be completed with the funds herein provided, in and through all the counties of the State." The counties are invested with police jurisdiction over all State roads, and must keep them free of snow and obstructions. Contracts for about 106 miles of improved roads have been made since the law went into operation.

The crux of the present road situation in the South seems to be that while local authority may build, with or without State assistance, as many kinds of roads within its jurisdiction as it wills, it is dependent on what its neighbors do in the same direction for communication with the outside world. A county that is lacking in public spirit, or at a low ebb financially, may block a main highway whose proper route, and possibly its only route, would be right through it. If all the local authorities in the State were of one mind, equally desirous of the creation of a fine road system and willing to tax themselves for its construction and maintenance, the road problem would not then be solved. Not only must there be roads, they must be good, well built and lasting, and to obtain that essential there must be unity of action, and that unity of action can only emanate from the State. It is the State that must originate highway construction, whatever plan may afterward be adopted for maintaining them.

A lesson may be drawn from the State of Ohio, which borders on Kentucky and West Virginia, and leads the country in having one-third of its public-road mileage improved.

Ohio has a State Aid and Construction of Highways law and a State Highway Department. All work done with State assistance is under the charge of this department. The State appropriated \$486,000 this year for road work, which allots \$5600 to each of the 88 counties. This allotment can be used for repairs as well as for new work. Not less than one mile of road may be built. A county can only obtain its apportionment on the petition of the abutting property-owners, with the approval of the County Commissioners. The State pays one-half of the cost of new construction, the county 25 per cent., the township 15 per cent. and the property-owners 10 per cent.

There are two objections to this plan. The Highway Department has no authority to plan and execute systems of highways unless the property-owners give consent, and permitting the counties that already have improved roads to use their appropriation for repairs. Public sentiment favors giving the Highway Department full authority to lay out and build a connected system of highways.

Ohio has a Good Roads Federation, composed of delegates from the various county Good Roads Associations, organized for the sole purpose of devising the best and most practical plans for highway construction and maintenance. This may well be imitated by every State in the South.

Unless much money is to be wasted two vital points are to be regarded in planning highway development, namely, that the roads be well built and well maintained. They should be built under the supervision of qualified road engineers after the best system physical and geological characteristics will allow. The system of working out a road tax and other haphazard ways should be abolished. A modified application of the railroad system of section gangs could be adopted. A road foreman with his crew should have charge of an allotted mileage. Equipped with proper appliances and a motor vehicle to transport them to the various points a well-handled crew could cover a large extent of roadway. Provide the vehicle with extra wide steel tires and a handy machine is available for giving the first compression to the freshly-laid material. Convicts could be employed in this work, and such of them as are not suited to road work could be worked in State-owned quarries preparing road material to be sold to contractors or for other uses. Employing convicts in the open is conducive to their health, as has been found in Virginia, and exercises a beneficial effect on their moral tone.

In most of the Southern States legislation is necessary before systematic progress can be made.

The first step to be taken is to bring home to the mind of the community, especially in rural districts, the great good, materially, morally and socially, that good roadways will bring about.

The press, as public educators, can help.

The cities and towns, which will profit by the lessened cost of farm produce and the greater facilities for getting in and out to buy and sell; the various organizations, political, commercial, educational, religious and agricultural—all can help by missionary work, circulars and speeches.

The railroads can help—as some of them are doing—by hauling road material free, and profit by it.

No members of the community can do more than the owners of automobiles to bring about a system of good roads. The practical benefits which they derive from good roads should induce them to give liberally of their time and money for the furtherance of an object of so great importance to them in increasing their pleasure and reducing its cost. They can do much to dissipate the feeling—strong in many communities—that theirs is a selfish interest by limiting speed to the requirements of the roads and by proper regard for the traffic on those roads, thus winning the good-will of their fellow-travelers, converting into adherents many who, for their cause, are opponents of road improvement.

The Federal Government can help by providing, through the Office of Public Roads, for the training of a large corps of road engineers. In four years it trained just 23.

The universities and colleges can help by adding a course of road engineering that each county may have its own expert road-maker.

The South should take pause when one county in California, San Diego, is preparing to spend \$1,250,000 in improving 455 miles of road for no other purpose than to attract settlers and tourists. Has not the South as many inducements to offer in every way as California? The great winter resorts of the South attract thousands of well-to-do people, with their automobiles, who go from State to State, scattering money lavishly, generally with an eye to the main chance. Provide a system of good roads and thousands more will take advantage of those resorts and spread over the South, taking note of its many opportunities for development and the investment of money.

Too much emphasis cannot be laid on the fact that within the next decade the development of the South will be one of the great marvels of this generation, and no one thing will do more to aid and make sure that development than a great network of good roads.

A Plan to Give to the South An Adequate System of Highways

SECOND PRIZE ARTICLE FOR THE MANUFACTURERS' RECORD.

By ISAAC FISHER of Pine Bluff, Ark.

Up to and including the year 1908 there had been spent upon the public highways of the United States, according to the estimate of the United States Department of Agriculture (report for 1908), the stupendous sum of \$1,720,339,000. This sum, however, represented the amount expended for dirt, macadam, gravel and other special materials roads. The good-roads movement is shown by stating that at the end of the period named above it was estimated that 8152 miles of road had been improved with special materials at a cost of \$8,152,000; 43,450 miles of macadam at a cost of \$195,525,000 and 124,468 miles of gravel at a cost of \$186,702,000, or a total mileage of 176,070, at a cost of \$390,379,000. And the appropriations for roads continue to be made at, approximately, the rate of \$70,000,000 per annum.

It is of interest to show what part the States of the South are taking in this general movement for better highways. Following is a table showing the expenditures for roads in each of the Southern States during 1904. The figures are from Bulletin 32, prepared in the office of the United States Director of Public Roads:

Table I.—Expenditures for Roads in the South in 1904.

Name of State.	Amount expended.
Alabama.....	\$1,576,434 27
Arkansas.....	1,395,342 80
Florida.....	577,577 10
Georgia.....	2,080,872 33
Louisiana.....	951,872 86
Maryland.....	873,470 50
Mississippi.....	1,875,485 45
North Carolina.....	1,358,687 23
Oklahoma.....	774,775 59
South Carolina.....	745,701 50
Tennessee.....	1,621,777 15
Texas.....	4,138,157 49
Virginia.....	687,751 06
West Virginia.....	893,285 28

The character of the roads built is shown in the table below:

Table II.—Character of Roads Improved in the South—Materials Used.

Name of State.	Gravel. Miles.	Stone. Miles.	Other materials. Miles.
Alabama.....	1261.5	392.5	96
Arkansas.....	181	55	...
Florida.....	17.5	345	523
Georgia.....	659	438	537
Louisiana.....	26	...	8
Maryland.....	480	840	250
Mississippi.....	109	...	40
North Carolina.....	422	399	438
Oklahoma.....
South Carolina.....	179	69	1630
Tennessee.....	2511	1774	...
Texas.....	167	1909	52
Virginia.....	720	755	125
West Virginia.....	26.5	217	11

But, to be of significance to this study, the showing of the progress of the South in road-building, in the foregoing tables, must be compared with that of the States which have made the greatest progress toward good roads—Massachusetts, Rhode Island, Indiana, Ohio, etc. Chart I indicates the relative standing of the Southern States with all of the other States in total mileage of improved roads, percentage of roads improved and the tax levy per \$100 of assessed valuation.

These results have been reached in the South through different means—through the efforts of individuals, automobile clubs, railroads, good-roads organizations and the newspapers. To discuss the plans used would far transcend the limits of this paper. It must suffice to mention one or two examples which are typical of the good-roads movement in the South.

Individual Enterprise.

As an example of individual enterprise we may mention the action of citizens living on the Georgetown public road between Hazelhurst and the Rockport road in Mississippi, a distance of four miles. These individuals, though expecting aid from the town and county, have gone ahead to raise the total amount needed to gravel the road—\$2500. There is nothing of the spectacular about this effort, but it is mentioned because it had its inception in private initiative, in which, in the final analysis, will be found the hope of the good-roads movement.

County Co-operation.

The history of road improvement in the South, as elsewhere, is a record of county efforts directed either through special tax levies or bond issues to raise funds for better roads. But there is a project on foot in Georgia, the Carolinas and Virginia which sets a new pace in county co-operation. Thirty-odd counties in the States named are co-operating in the building of a continuous highway 750 miles in length. This thoroughfare is called the "Capital Highway," because it connects the State capitals—Atlanta, Columbia, Raleigh and Richmond—and leads to the capital of the nation. The spirit of co-operation here shown augurs well for the good-roads movement throughout the Southern States.

Moral Support of Governors of States.

In addition to this, the Governors of several of the States of the South are giving moral support to the good-roads movement. Governors Donaghey of Arkansas, Sanders of Louisiana and Swanson of Virginia are cases in point. And the encouraging part of it all is the fact that these efforts are bearing fruit in the social and economic uplift of the people of the South.

The following practical results flowing from the good-roads movement as related by public roads officials and by delegates at recent road conventions give point to the statement:

Tennessee.

In 1903 Madison county, Tennessee, was authorized by the Legislature to issue bonds in the sum of \$300,000 for the construction of roads. The work was vigorously pushed until 29.15 miles of improved stone roads radiated distances of five and ten miles from the city of Jackson. As to the results of that work, I cannot do better than quote the language of the engineer who directed it:

"Since the construction of these roads began the land values throughout the county have increased, in many instances, from 20 to 100 per cent., and the city property has

greatly advanced in value. There are no houses 'to rent' in Jackson; builders are busy, numbers of new real estate offices have been opened, large tracts of farm land are being subdivided and prices are being paid which astonish the most far-seeing champion of this now popular movement.

"New families from adjoining counties and States are constantly coming in, some to make their homes in the city and others wanting farms on the 'good roads.' Still others, looking ahead and anticipating profits, have made purchases five and six miles back from these roads, paying largely increased prices * * * Good homes are now being made for the reception of families * * * fruit trees are planted, and thrift and industry prevail where indolence and improvidence existed but a short time before." (Yearbook United States Department of Agriculture for 1904.)

Texas.

"Harris county has received an immigration unparalleled in the history of Southern Texas, and its taxable values have increased from \$25,927,449 in 1893 to \$28,141,103 in 1894, being an increase of nearly \$2,250,000. These facts * * * are clearly attributable to the efforts made by Harris county for good roads." (United States Public Roads Bulletin No. 15.) A special tax was voted in this county.

Alabama.

"We have built some of our roads [in Montgomery county] 15 miles in length, and the people have begun to go back to their places and erect nice houses, and the lands are in a good state of cultivation where not long ago the inhabitants were leaving and abandoning their places; and all this is done by the building of good roads." (Road Bulletin No. 19.) This county petitioned the Legislature to levy a tax of \$30,000 for road purposes. The measure failed in the Senate, but the determined county citizens voted and made it a law.

North Carolina.

"Since the good roads have been built [in Mecklenburg county] farm lands have advanced in value from \$12 and \$15 per acre to \$75 and \$100." (Road Bulletin No. 23.) This county is famous for the splendid results obtained by the use of convicts in public road-building.

Virginia.

"The boom of 10 years ago * * * sowed many good seed. It gave us the Rivemont bridge, and that opened a new section. It gave us a woman's college, and that brought after it a great avenue, macadamized and kept in order, and that, in turn, has brought a park * * * and many beautiful Southern homes with the best modern architecture embodied in them. The formation of new and broader ideas has advanced the community." (Road Bulletin No. 23.)

Alabama.

Another example from Alabama will not be out of place: The good-roads advocates in Madison county, after being defeated before the people in an effort to issue bonds for road improvement, tried a second time and succeeded, issuing bonds to the amount of \$100,000. Of the results, a delegate said:

"Before we started out for good roads the city of Huntsville had but about 4500 people; the county was almost depopulated * * * few white people lived in the country. But suppose you start out today from that beautiful little city; go out on the Meridian pike. All along that road from Huntsville to Meridianville, a distance of 15 miles, there are beautiful homes, straight fences, barns painted, and an air of general prosperity and civilization prevails. Not only * * * that * * * but we so greatly increased the value of the taxable property in Madison county that we paid off those bonds and scarcely knew when we paid them." (Road Bulletin No. 26.)

Why the Good-Roads Movement Has Not Advanced in the South.

So much for what has been done. A glance at Chart I, however, will show that in many respects the Southern States are far behind some of their neighbors. The causes for this are easily explained, and may be set forth as follows: (1) The inefficiency of the statute labor system, "which permits citizens to work out their taxes on the public roads"—12 of the Southern States employ such a system, and no better commentary upon its inefficiency can be made than the fact that in the 36 States of the Union in which it prevails, only 6.15 per cent. of the roads are improved, while in the 12 States and the District of Columbia, where all taxes are payable in money, 18.39 per cent. of the roads are improved; (2) the unwillingness of the rural taxpayers to assume the heavy burdens necessary to the building of improved highways; (3) the popular aversion to the issuance of bonds, and (4) the lack of any central authority capable of co-ordinating the efforts of local communities." To these may be added indifference caused by long familiarity with bad roads and "lack of appreciation of the social, commercial and economic value of good roads."

Federal Aid Discussed.

It is in order now to examine a plan which shall give to the South the system of highways which are demanded by its manifold interests. There are many friends of the good-roads movement who feel that if the Federal Government may build a great canal across Central America, pass a ship subsidy law, appropriate money for the improvement of rivers and harbors and the erection of Federal buildings, it may, with equal propriety, construct a vast network of highways covering the whole of the national domain. However great the force of the argument, on constitutional grounds, that it is the duty of the National Government to construct highways in its component States, I cannot subscribe to the view that such a course will be best for the South, and I must appeal from any decision to seek such aid for this section to the higher court of the more sober sense of others who love the South and desire that it shall come into possession of all that is highest and best in social and economic life. The objection is not laid upon the traditional attitude of the South toward States' rights and centralization in government, but is predicated upon the higher ground that for the Central Government to build the public roads is to rob the States, not so much of their constitutional rights as of a privilege necessary to the sovereign health of the people. The South must continue to develop the principle of self-initiative and self-help. That way lies strength; but in ever-increasing reliance upon the benevolent care of our beloved Fed-

eral Government—God save the Union!—there is certain to come to the South a weakness in that power of self-direction which has long been its pride, and a loss of that community strength which is the hope and stay of Commonwealths.

The South Must Build Its Roads.

The States in "Dixie," in no spirit of arrogance, but with a view to teaching their youth the lesson of self-help, must build their own highways. Of the assistance which the General Government can give the Southern States, in this connection, more will be said hereafter. To the objection already given should be added the further one that Federal road-building for the States will throw the internal improvement of each State into national politics. This would be a calamity.

How, then, shall the South develop a system of roads suitable for her needs? A careful examination of road-building methods in the various States of the Union prompts the suggestion of a plan which we shall call the local initiative and taxation, education and State aid plan. It is to be borne in mind that the purpose here is not to indicate absolutely the best road-building plan, nor to draft a road law, but to devise a system through which the whole South may develop an improved chain of highways; for it must be remembered that however excellent may be any one plan, it will not be accepted wholly by all of the States of the South.

Local Initiative.

Whatever results are secured in road-building in the Southern States will have their beginning in local initiative. By local initiative, as here used, is meant a volun-

officials will furnish materials, common labor, teams and fuel, the United States Office of Public Roads will supply supervising engineers, and, in most cases, the necessary machinery, in addition to making laboratory tests to determine the best materials available for the roads, and showing proper methods of road-building.

Educate the Women to Appreciate Good Roads.

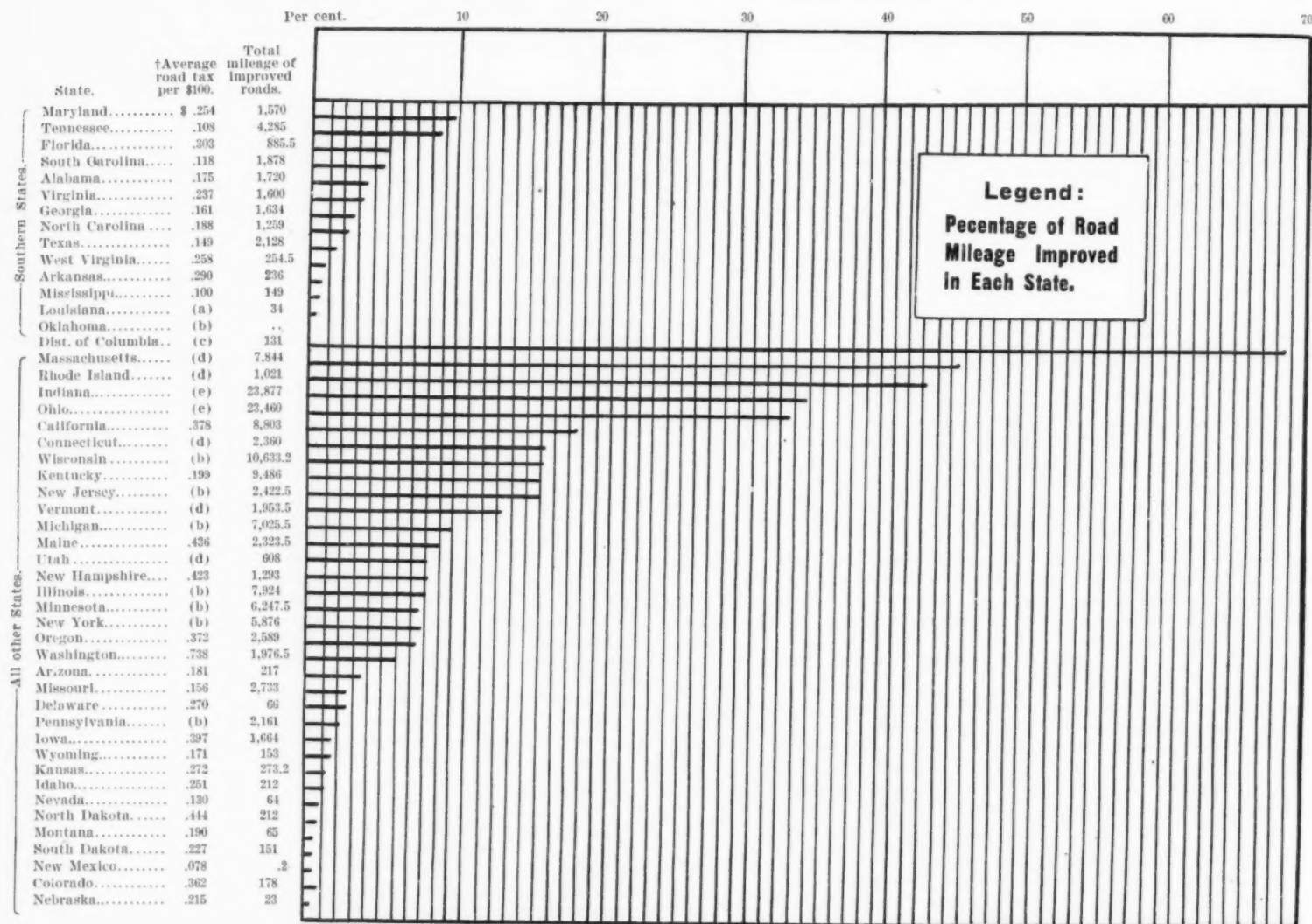
The next step is to educate the women to appreciate the value of good roads. The owners of automobiles and carriages can render yeomen service in this direction. Let a day be set aside as "Ladies' Road Day," on which the owners of vehicles will take the women of a given community, or along a certain road, for an outing on the best driveways to be found near the starting-point. If possible, let the tour include one of the bad roads, so that comparison may be made between the two. Let attention be directed to the pleasures and social benefits denied all of the people of the vicinity by the scarcity of good roads, and then pledge the ladies to talk and work for better highways.

Convert Business Men.

Extend the campaign now to the business men of the community, and teach them the relation which improved roads bears to commercial prosperity. The special points to be set forth are admirably set forth by an agent of the United States Office of Public Roads as follows:

"Retail merchants are seriously affected by bad roads, which frequently entail loss of business, or at least prevent a profitable season's trade. When a country merchant

CHART I. Road Improvement in the United States in 1904*



*Of assessed valuation in 1904.

(a) Limit of property tax for one person is \$15.

(b) Levy varies in different townships.

(c) Levy not given.

(d) No separate levy is made for roads.

*Based upon figures in U. S. Public Roads Bulletin No. 32, Department of Agriculture.

tary beginning of the agitation for or the work on improved highways, either by private individuals, one of the smallest political divisions of a State, or both of these agencies working together. These interested parties in all parts of a given State must get into touch with each other—must form a State good-roads association. It will not be necessary to wait for complete county organization. One good-roads advocate in each of a majority of the counties will be sufficient.

Campaign of Education.

Once formed, let the good-roads organization begin at once a campaign of education, and push it vigorously. For this is to be the most important part of the work. Men do not usually move until they see a sufficient reason for doing so. This campaign is intended to educate the South to the knowledge that good roads are a necessity as well as a luxury. Leaving here the matter of local initiative, to which we shall again recur, it is in order to outline the educational crusade for improved roads in the South.

Education Through Object-Lesson Roads.

Generally, belief follows sight, and herein is the key to the first educational efforts to be made. Let each good-roads advocate have a section of road built in his community, so that the people may see what a good road is like. Here is where local initiative and taxation are to be applied in the beginning, and where the Federal Government may aid the State without multiplying the community. If individuals or local

is thus affected the effect in turn extends to the wholesale dealer. Collections become poor, remittances are delayed, extensions of credit are asked for, stock is left on hand to become shelf-worn, and a generally unhealthy and profit-losing situation prevails."

By All Means Reach the Farmer.

The farmer, by all means, must be brought to a realization that he is one of the heaviest sufferers from bad roads. And the teacher should be prepared to talk facts to him. Let him know that good roads increase the profits on his farm products. For example, if a Texas farmer is told that the United States Department of Agriculture has found (Bulletin No. 49, Bureau of Statistics) that the average cost of hauling 1948 pounds of lint cotton in that State from the farm to the shipping point, an average distance of 15 miles, the round trip consuming 1.3 days, is \$3.54, it will need very little argument to show him that this cost would be reduced if the roads were improved, and that if, instead of having but 1.75 per cent. of the roads improved, as is true now, the State had about 40 per cent., he could easily drive his wares to better markets if the prices in the local one did not suit him.

Educate the Rural Teacher.

In this connection the rural teacher can help to drive home the importance of good roads to the farmer if the former is himself given a course of training. The teacher, from his own school register, can estimate the educational loss to the farmers' children

by their having to be absent from school because of impassable roads, while the minister of the community could be induced to show his congregation how great is the spiritual and moral loss entailed through enforced absence from divine services and through the exodus of farmers' children, who flee to the cities to escape the social isolation which results from bad roads.

Get Newspapers to Help Educate the Public.

Secure, now, the co-operation of the newspapers, particularly the country papers, and from time to time place into their hands instructive literature bearing on good roads. The press remains one of the most potent aids to progress, and must not be overlooked.

Carry the Good-Roads Message to All the People.

Requests should be made to the United States Office of Public Roads for lecturers on road-building. These agents serve without pay, but if one cannot be secured, and even if he can be, arrangements should be made with a tax expert in, say, the State University to lecture to the people on some such subject as "Progress Through Taxation," in which taxation for road-building will be advocated. Every State which plans to build good roads should have this lecture on taxation, to overcome, in part, the great aversion of the people to paying taxes for road purposes.

Interest County Judge or Road Commissioners.

When this campaign of education has been carried to the points mentioned, the County Judge, if he was not originally a good-roads advocate, will be in position to know to what extent his county is ready for and will support him in efforts for good roads, and he can then be of valuable assistance to the movement. Neither he nor other officials holding office from the people are likely to move ahead of public opinion. It may not be amiss to suggest that each County Judge, having to do with the appointment of students to the State universities, be urged to encourage certain young men seeking appointments to those schools to take up the study of civil and highway engineering. This would result in giving to each State its own staff of expert road engineers.

Bring Candidates for Political Offices Into Line.

If this work of educating the people has been well done, it will now be comparatively easy to pledge candidates for the Legislatures to the advancement of good roads through State legislation, and the agitation for better highways will have reached the final stage of the good-roads plan, i. e., the point at which a larger number of the people are ready to tax themselves for roads and to demand State aid in road-building. To quote the United States Secretary of Agriculture:

"The main features of the State aid plan as now adopted in a number of the States are (1) a State highway commission, and (2) annual appropriations from the State treasury to pay a fixed part of the expense for building good roads, the balance of the cost to be met by the counties, the towns and the owners of property lying along the improved roads. In nearly all cases the initiative is with the local communities, and the work is done under local control, but according to plans and specifications which must be approved by the State highway commission."

New Jersey, which was the first to adopt this plan, pays one-third of the cost, the counties and their constituent towns paying the balance; New York pays one-half the expense, the counties 35 per cent. and the towns 15 per cent.; Connecticut pays two-thirds and in some cases three-fourths of the cost, while Massachusetts is authorized to pay the whole cost, requiring the counties to return to the State within six years one-fourth of the money so expended. Of the other States using the State aid plan, with varying modifications, may be mentioned the remaining four New England States, Pennsylvania, Delaware, Missouri, Washington, Idaho, Maryland and Tennessee. There is doubtless a connection between the fact that the last two States are found in the State aid column and the other fact that they lead the Southern States in per centages of improved roads.

Kind of State Aid Plan for the South.

As already indicated, and as will be seen by reference to Chart I, the greatest progress in road-building has been made by the Commonwealths in which, in some form, the State aid plan has been adopted, and in which the statute labor laws have been repealed, and the payment of all taxes is in money instead of labor. These facts are eloquent, and point the way for the Southern States which would make progress in the building of good roads. A combination of the best features of the Massachusetts, New York and New Jersey plans will make one good State aid plan for the South.

Fruits of State Aid.

The fruits of the State aid plan, to quote again the Secretary of Agriculture, are as follows:

"It provides sufficient funds to give scope and system to the efforts for road improve-

ment; it distributes the burden of expense so as to greatly relieve the rural taxpayers, and it stimulates action on the part of local communities, co-ordinates local effort, assures competent supervision and secures results of permanence and value."

In the opinion of the writer, the State aid plan, used to supplement local efforts, is the best of the plans tried thus far, and it is an end to which the local initiative and campaign of education already described should move. But while this plan seems to be the best, it must not be forgotten that in human probability all of the Southern States will not accept it, and we are seeking a plan which will give good roads to such States of the South as will reject the State aid plan, as well as to those States which accept it.

Local Initiative and Taxation.

In the States which will not appropriate money to aid minor political divisions in their road-building program the work must be accomplished through local initiative and taxation, i. e., the funds must be raised entirely without State aid; but since, if the States are to have good systems of highways, the county roads must be built according to a plan which takes account of materials, amount of traffic, available revenue, methods of construction adapted to local needs and organization and administration, it is clear that some central authority competent to standardize such a system is needed. Such an authority will be found in a State highway commission, one member of which shall be an expert engineer, who shall take care that all road-building in the Commonwealth conforms to an harmonious system of State highways. Such a State authority is an absolute necessity in States which do not accept the State aid plan. But in addition to securing legislation for the creation of highway commissions, efforts must also be directed to the work of having the State Legislatures abolish the statute labor laws, making all labor road taxes payable in money, and give the needed authority to local communities to tax themselves, issue bonds, raise funds by private subscription and use the convicts, if necessary, to help build public highways, always under the supervision of the State.

The State road law should provide for a board of county road commissioners, to serve for a term of years, the tenure so fixed that the term of but one member would expire each year, and to overcome the lack of initiative on the part of these commissioners, caused by fear of political results of increased taxation for roads, the law should provide a mandatory clause compelling a tax levy upon application of a certain number of property-holders who undertake to bear part of the expense of the improved road.

In most of the Southern States money for roads is raised through property, poll and labor taxes. The use of bonds for this purpose has not yet become general in these States.

It remains to notice the subject of the employment of convicts on the public roads, and it will be enough to set down here certain economic facts in the form of a table touching this matter, and to state that under certain conditions these unfortunates may be employed on the public roads, as California and North Carolina are doing so notably, with profit to the State, no detriment to anyone, and marked success in road-building in the South. Table III will show what the South has done in the use of convict labor:

*Table III.—Employment of Convict Labor on Roads in the South.

State.	Number of counties in the State.	Counties using convict labor on public roads.	Average number of convicts on public roads in 1906.	Average cost of guarding and keeping each convict per day on road.	Average cost per mile of road built in county jail.	Average cost of hired road labor per day.	Yearly value of convict labor on roads during 1906.	Yearly value of labor of prisoners kept in jails and not worked on roads.
Alabama.....	67	9	25	\$.81	\$.30	\$.90	\$6,187	\$195,387
Arkansas.....	75	21	62	\$.85	\$.75	\$.95	16,197	83,609
Florida.....	45	11	106	\$.46	\$.40	\$.32	28,818	119,561
Georgia.....	137	27	946	\$.26	\$.35	\$.60	156,080	177,046
Kentucky.....	119	42	419	\$.52	\$.50	1.00	115,225	169,225
Louisiana.....	59	9	67	\$.59	\$.40	1.00	18,425	92,675
Mississippi.....	75	12	113	\$.25	\$.39	.60	18,645	65,405
North Carolina.....	97	24	643	\$.24	\$.39	.75	133,508	125,195
South Carolina.....	40	32	579	\$.18	\$.39	.75	119,418	83,325
Tennessee.....	96	37	723	\$.24	\$.40	.80	158,740	195,390
Texas.....	229	65	672	\$.39	\$.45	1.15	211,529	378,551
Virginia.....	100	6	23	\$.38	\$.30	.80	5,069	72,380

*Yearbook U. S. Department of Agriculture for 1901, p. 320.
†These figures were explained as being excessive.

Finally, the answer to the question as to how the South shall have a system of public highways suited to its needs is that this system will be developed through local initiative and taxation, education and State aid.

WHEREBY THE SOUTH MAY OBTAIN GOOD ROADS

THIRD PRIZE ARTICLE FOR THE MANUFACTURERS' RECORD.

By W. T. CORWITH of Charlotte, N. C.

The subject of good roads is one which has invited the attention and occupied the minds of men for centuries. The ancient Romans appreciated so fully their value that they built roads, portions of which are said to be still in use. Most of the countries of Europe possess a great many miles of excellent highways, and the relative prosperity of the rural districts can be easily taken account of if the number of miles of good roads contained in each be known.

The practical value of good country roads is becoming more and more a subject for the serious consideration of the people of this country, and gradually one community after another shows signs of awakening to the fact that good roads are valuable assets, and prove wherever built to be pronounced agents in the wealth-producing elements of the country in which the people are privileged to share their advantages.

The matter of good country highways enters into the economy of the people at large to a degree not realized by the average citizen. While it must be admitted that the farmer and landowner are the direct beneficiaries, and that it is largely through the farmer that the desired results must be obtained, at the same time a responsibility rests

upon the people of every town and city the country over in regard to this matter, and if necessary pressure should be brought to bear upon them to enlist their assistance in the achievement of this great work, which, when completed, will mean the saving annually of millions of dollars to the people.

This country has excited the wonder of the world by the rapid manner in which it has in many respects transformed conditions one decade after another, and when we carefully consider the situation, noting the tremendous strides of progress along the many lines of development, we may wonder ourselves why it is that the great avenues upon which we place dependence for our annual supply of food have been so grossly neglected.

The subject of good roads is by no means new. Why is it that nothing more has been accomplished? Agitation surely has not been entirely lacking; we have had good-roads conventions and good-roads speeches; the papers and journals have for some years carried article after article advocating good roads, and here and there small organizations have been created; yet still we ask why has so little progress been made? The chief reason is because of the want of aggressive, united, centralized, systematic effort.

The principal cause for the lack of better roads in the South is due to the absence of anything like a strong, enthusiastic organization, bent on the attainment of this one object, an organization with sufficient stability to do things. To be sure, a vast amount of work has been done, but in what manner, and at what expense of time and energy? A certain amount of energy applied here and there, often desultory, and with no regard to system, has at one time and another brought some considerable results. But what has it all amounted to as compared with what might have been done through the medium of a broad-gauge, powerful organization working out the problem by means of a definitely outlined system?

The great business houses of the country, the great railroads, political, religious and military bodies; in fact, every great movement involving large numbers of people, have presumed to accomplish considerable with reference to securing what is needed, and it might seem as if the foundation has been well placed. This is, however, only true in a sense. The minds of progressive people have in a measure become awakened to a realization of our great deficiency all over the country in the matter of good roads. The work is really just in its infancy, and it devolves upon these thinking people who have already made something of a study of the matter to arouse the masses and fill them with the enthusiasm necessary to get the desired results.

The work which has thus far been done toward the building of roads in the United States has accomplished considerable with reference to securing what is needed, and it might seem as if the foundation has been well placed. This is, however, only true in a sense. The minds of progressive people have in a measure become awakened to a realization of our great deficiency all over the country in the matter of good roads. The work is really just in its infancy, and it devolves upon these thinking people who have already made something of a study of the matter to arouse the masses and fill them with the enthusiasm necessary to get the desired results.

The American people have a well-established reputation for accomplishing whatever they undertake, provided the minds of the majority are a unit. It needs but to get the people well informed on the subject of good roads, and to arouse them to action, to obtain this great factor, so necessary to the economy of the South, and, in fact, every part of the nation. The building of permanent roads can best be accomplished by well-directed centralized effort. Concentration of energy is needed, and an intelligent, harmonious body, possessing a willingness to work, has practically no limitations in its scope.

In each State there should be established a strong State organization, having as its one object the promotion of vigorous activity along lines calculated to secure in a definite and systematic manner the building of good roads in every county of the State.

Such an organization should include in its membership every citizen who is enthusiastically in favor of good roads. Men of energy and sound judgment, and men who will work; in fact, the ablest and most progressive men in the State, regardless of what their calling may happen to be. The movement needs the best brains the State can afford to serve as leaders to get the project well launched.

If possible, each county in the State should be represented in the membership of this organization. If there happen to already exist two or more good-roads organizations in the State, they should all be amalgamated into a single strong one, thus centralizing the work and creating an efficient body equipped to reach every portion of the State.

A fund for the prosecution of this work should be supplied by the State, either through the Department of Agriculture or by direct appropriation. This fund to be set aside annually for the exclusive use of this particular work. The Commissioner of Agriculture should be enlisted to active service in behalf of the project, and he will be in a position to render most valuable aid to the same at all stages of its existence.

The officers should consist of a president, two vice-presidents from each Congressional district in the State, a secretary and treasurer. These officers should comprise a managing board which will have the management of the general business affairs of the organization, and should naturally be selected with great care, as they must of necessity be men of action, as well as men with brains, whose hearts are earnestly in the work.

An office should be maintained all the year round, and should be in charge of a competent secretary, who should be fully informed as to the practical details of road-building and of organization work. He should have to assist him sufficient help to enable him to effectually accomplish his work, the plans of which will be carried out in accordance with the directions of the managing board of the State organization. The secretary should be given every possible assistance by the members, and each one should feel the responsibility of doing some active work to push the cause along.

The work of the State organization should be centered exclusively upon securing, through the education and training of a certain number of energetic men, a separate and distinct organization, having life and activity, in every county throughout the entire State; which, when once completed along the right lines and with the right men at the head, would in time provide the medium for working out the problem for each individual county of the State.

The workers in the State organization will, in looking over the field, find certain counties where the preliminary work has been well done, and all that will be needed is a measure of stimulation to draw them into line. But in the majority of counties the entire work from the foundation up will have to be cared for. It is in the latter class that the most difficult part of the work will be found, as the people are usually far removed from any good roads, and have no appreciation of what the many advantages and financial returns are to be enjoyed from their possession and use; in fact, the greatest obstacle to be encountered by those who will lead the movement for better roads will be found in the lack of knowledge by the people at large, and specially the people of the farm, of the actual benefits to be derived. They do not realize what it means to be able to travel independently over a good road in all kinds of weather, regardless of the season of the year, nor do they draw a clear conception of the possible annual increase in their incomes by reason of being able to get to market whenever they see fit, and the many other advantages to be mentioned later on.

Facts and figures should be accumulated by the State organization, providing an argument most conclusive, and showing in every possible practical way the increase in land values; the additional profit to the grower of produce; the saving in time; the broadened scope presented, permitting him to exercise greater independence in selecting what he will grow; also the advantage to the consumer through the possibility of a better price and more uniform supply, and as well all other features of advantage which commend the building of good permanent roads. These facts and figures should be

classified and printed in concise form, in different attractive folders, and given wide distribution, to serve as a medium to aid the people to become educated, and to assist in converting the skeptical. In the same way literature should be generally distributed setting forth the cost, the kind of material to use and the best method of procedure as relating to the construction, etc.

Bulletins from the Agricultural Department in Washington should also be obtained and given liberal circulation. The aid of all Boards of Trade, Chambers of Commerce and other commercial organizations should be solicited, and their help and influence will be found a decided factor in the ultimate success of the undertaking.

When the work of the State organization has been pushed through the various channels of education to a point where a number of prominent and energetic citizens in a certain county have manifested a considerable degree of interest in the good-roads project, when these men show that their eyes have been opened to the necessity for securing for the county the benefits to be derived from a profitable convenience of this character, the projectors in the State organization cannot do better than encourage these citizens to unite and persevere in a systematic and enthusiastic manner the work, the need for which has been made so apparent. A meeting should be called and all the enthusiasm possible injected into it, addressed by an able speaker of experience from the outside, and an organization for the county effected at this meeting, having for its sole object the stimulating and educating of public sentiment in favor of good roads building in that particular county.

The first work of the county organization should be to commence a carefully planned campaign of education among the people, in order to get their minds in the proper attitude toward the good-roads project.

The local newspapers should be enlisted in support of the movement and a series of articles which are not too long, but full of interesting facts, should be published at regular intervals. In these articles the practical value of good roads should be dwelt upon and presented in accurate detail, and every possible argument advanced to show not only the great comfort and convenience, but the direct profit which is sure to follow the building of permanent county roads. Emphasis should be placed upon the necessity for united effort, and the citizens urged to join the project and help a good thing along. The newspaper is a very productive source of good in molding public sentiment. No better aid can be secured.

From time to time as the campaign of education progresses there should be called at some accessible point in the county a public meeting, to be addressed by a man (possibly one supplied by the State organization) who is well informed on the subject and familiar with essential facts and figures which exemplify in a convincing manner the practical value to the individual of living on or near a smooth hard road. At each of these meetings as much enthusiasm should be generated as possible. Good convincing literature secured from the State organization should be given general circulation to feed the minds of the people with ideas along the right channels.

After once awakening a certain measure of interest a very excellent method of further convincing the people is to get a body of them to go to a place where good roads have been built and inspect a first-class system of country highways. Let them see just how the work is done, and what it costs to build them; at the same time a comparison should be drawn between the values of land adjacent to hard good roads and those situated where only the ordinary ungraded dirt and mud roads are to be found. These and other methods of procedure, which will naturally suggest themselves by virtue of existing local conditions, will enable the leaders of the work in time to prepare the people for the vital part—the raising of the necessary funds to start the construction.

During the time when the campaign for education is still on, and while every effort is being made to create a favorable change in the minds of the people, the county organization must not be lost sight of, but must be continually worked upon and made to grow, for upon the growth of it depends the future of the whole scheme. There is no getting away from the old saying "in union there is strength." As one by one the people are converted to the cause of good roads they should be urged to become members of the county organization, and the growth of this may then be taken as a gauge of the progress made in the undertaking. Then, again, what a power is to be found in the strong county organization thus obtained when the time comes to strike! Lined up in behalf of the cause, and working systematically for the accomplishment of the desired end. It is such strength of organization which will alone assure success.

When at last the work has proceeded to a point where it is apparent that public sentiment has been sufficiently educated to suggest success, a determined effort should be made to secure the needed funds through an issue of bonds by the county. The amount should be ample to purchase the required road-building equipment and to pay for the building of at least 75 miles of roads—100 miles would be better for a start. Thus an excellent test could be made and sufficient object-lesson presented to influence additional funds being raised for the completion of the work.

An annual appropriation should be secured from the county sufficient to provide for all necessary repairs. The system which prevails in so many country districts of permitting the farmer to work out his road tax should be abolished and the tax paid in cash, so that the money may be devoted to the construction and maintenance of permanent roads. The work should be pursued year by year until every public highway in the country has been provided with a hard, smooth surface. No better investment than this can be made by the county, and none will provide its people with the means of securing more profitable returns.

The State and county organizations should work together in harmony, and it will be found that most of the methods used in one will prove effectual in the other. The promoters and leaders in both organizations must be men who are actuated by a consciousness that they are right, and they should be imbued with an unselfish desire to do something for the public good. They should enter the project with the expectation of many difficulties, much opposition and some discouragement. A long, hard siege should be planned for, and each one must be a firm believer in the ultimate success of the undertaking, and must carry heart and soul into it. They should put into the work all the enthusiasm, energy and determination they can command, permitting nothing to dissuade them from their purpose or cause them to lose confidence in the final outcome, and they should stay with the fight until victory crowns their labors, as it surely will if persisted in.

Conviction, determination, enthusiasm and persistence are the great essentials for success in work where public sentiment is involved.

Needed aid can at any time be secured from the office of public roads of the United States Agricultural Department in Washington, from which source may be secured the

advice of experts and engineers who may be relied upon to supply the information necessary to insure the adoption of the correct methods of procedure for the commencement.

Such a plan as herein suggested should commend itself because of its simplicity, being tangible, practical and easy to put in operation.

A few facts and figures will not be amiss to demonstrate what has actually been accomplished in adding to the wealth and comfort of a certain Southern community through the construction of hard permanent graded roads.

The most striking example that the writer has been made conversant with is to be found in Mecklenburg county, North Carolina, which has been made famous the country over by the system of magnificent graded macadam roads, which connect Charlotte, the county-seat, with every township in the county.

In the State of North Carolina there are 46,850 miles of public highways, of which only 750 miles are macadam, and of this amount, 210 miles are to be found in Mecklenburg county, which is considered the most prosperous county in the State. The good roads of Mecklenburg have attracted wide attention, and many men from other States have visited this county for the express purpose of seeing what has been done. Representatives from municipalities in other States have been sent to inspect this system of country roads and to learn how the work is done, with the view to creating a movement for the building of similar roads in their respective communities.

The possession of these roads has added very materially to the convenience, the comfort and the wealth of the people of both the county and the city of Charlotte, helping alike the business interests of all. Competent authority, after giving the matter careful attention and thorough investigation, has placed the increase in the value of farm lands in Mecklenburg county to amount to \$1.25 per acre per year for every acre of land adjacent to these roads. It is easy to estimate that the amount of the increase will be sufficient in one year to pay for the building of all of them.

The people of the county are proud to look upon their beautiful smooth roads as the chief factor in contributing to the development of the same, and concede that no other one thing has been so fruitful in its direct results.

Statistics gathered from over one-half of the cotton-growing counties of the South show that the average expense of hauling cotton is 16 cents per 100 pounds, or about \$2.75 for a load of three bales. The building of permanent roads in Mecklenburg has reduced this cost of hauling more than one-half by permitting the planter to more than double the size of his load, and as well to haul it in less time. Stop right here and make an estimate of the vast sum the cotton growers of the South might save annually on a crop of, say, 13,000,000 bales. The saving would, if properly applied, in a short time pay for the entire cost of the construction of all the permanent roads needed, and after once built and paid for would be clear profit.

It is a common occurrence in Mecklenburg county to see one mule or one horse hauling to Charlotte six or seven bales of cotton at one load, where the distance to be covered is not too long, and this over the same roads where under former bad conditions the passing of an empty wagon during a wet season would have been very difficult.

The real value of good country roads can only be appreciated by those who have enjoyed the privilege of using them frequently, and the many advantages which accrue to the inhabitants through their construction are entirely too many to be enumerated here. The people of Mecklenburg have profited by the investment in permanent roads, for the reason that they have thereby been furnished with the avenues of easy communication between the seat of production and the buyer, practically placing the farmer next door to the market.

Good roads permit the producer to take advantage of the highest prevailing prices, regardless of the weather or of the season of the year, and also permit him to decide for himself as to what he will plant for a crop, and how small or how large the load to be handled shall be. The item of reduction in repairs and of wear and tear upon vehicles and the lengthened utility of horses and mules through travel over good roads is no inconsiderable one, and adds many a dollar to the farmer's savings in the course of a year. Other advantages to the farmer may be summed up as follows:

They facilitate travel and make easy communication between different parts of the county, bringing the farmer in easier touch with his neighbors; aiding the country merchant to keep in closer relationship with his customers, and thereby enable him to increase his business; they reduce the time and make travel in the country a pleasure; they permit the people of the farm to drive across the country and attend church and also take advantage of many interesting and entertaining events which from time to time take place in neighboring communities, as well as the nearby towns and cities; they enable the physician to quickly reach the patient when called in event of an emergency, and loss of life is thereby frequently prevented; they make possible the prompt delivery of mail all the year round; they attract to the country the very best class of immigrants, and thus the increase in population is of the most desirable people; they contribute to the elevation of the social and educational standards of the community by furnishing the means at all seasons of the year to enjoy the privileges and benefits to be derived from the best educational institutions and from the frequent intermingling with others in social intercourse.

With good roads the planter can frequently take advantage of an advance in cotton and sell on a high market. The planter who is obliged to use dirt roads is forced to market his crop early, while good weather exists, and before the roads get heavy, and must sell, regardless of price. This is one of the factors which works in favor of a low price at the beginning of the season.

A condensed outline of the method followed in the construction of the Mecklenburg roads may prove interesting and of some value. The outfit of machinery necessary for the work consists of a portable engine, road machine, crusher, bins for gravel, steam roller and revolving perforated boiler-plate screen, made to run three sizes of stone. Most of the stone is furnished by the farmers, who get it out and deliver it to a certain convenient place along the road during the quiet season after the work on the crops is over.

The roads of Mecklenburg are built 15 feet wide (with an equal width of dirt road paralleling it for use in dry weather), 9 inches deep, and are of three different sizes of crushed stone. The first layer is of the largest size, and is broken to fragments, the longest dimension of which does not exceed 2½ inches; it is spread uniformly and rolled to a thickness of 4 inches. The next, or second layer, is of stone not quite one-half the size of the first, and is rolled to a thickness of 3 inches. The last, and top layer, is composed of the fine screenings from the crusher, which is carefully spread and rolled

hard and smooth to a depth of 2 inches, and comprises the top-dressing and final finish, and is surfaced so as to have a slight elevation in the center.

The use of convict labor here has conduced to very materially lessen the cost of building, and this to a degree that removes all question of a doubt as to the economy of this class of labor for road construction. Under the present system of operating convict labor the work of road construction in Mecklenburg costs from \$1600 to \$2500 per mile, according to the amount of grading found necessary. This amount is in addition to the cost of bridges and culverts.

In building roads where the best results are desired care should be taken to provide good drainage and correct grades. Instead of using small wooden bridges, which are temporary at best, terra-cotta, metal, or, best of all, concrete culverts will in the long run give the most satisfactory results.

There is no reason why every county in the entire country should not have good roads if the proper effort is put forth. The desired end may be obtained by the application to the best advantage of the materials found most convenient in each locality which may contribute to their construction. When the people of any community once enjoy the benefits of hard, smooth roads, no influence can be brought to bear to produce a change of sentiment toward a return to the dirt roads experienced under former conditions.

Wherever it is at all possible to be obtained, the use of broken stone is conceded to be by far the best material for permanent construction, and years of experience prove it to be the most economical in the end.

The work which may be accomplished by automobile enthusiasts toward the building of good roads over the country is by no means to be lost sight of or in any way ignored or discredited. The point, however, which they must keep ever before them is that most people who do not possess an automobile are rather inclined to show some opposition if the work of road-building is made to appear for the benefit of automobiles alone. In consideration of the fact that the expenditure of money for roads is left to the voice of the people, the automobilist desiring to achieve his ends must, if successful, necessarily work out his plan along lines not entirely selfish, and must base his appeal upon the practical economic value to the masses rather than the convenience and advantage to any one class. The broad view must be taken, and the work pursued along broad lines, if the desired results are to be forthcoming.

In casting about for the best method to provide our people with the right kind of highways throughout the country, let us not lose sight of the fact that the ultimate conclusion we desire to attain is to provide the means for securing the most good for the most people. While it is a thing greatly to be desired, to provide the pleasure-seeking automobilist with smooth roads to run his machine over, at the same time we must consider that the real vital consideration we have to deal with, and upon which we must focus attention, is how to secure foodstuff at a less cost, and how to make crop-raising more profitable to the producer.

We must also remember that the country roads throughout this broad land are largely in the hands of county commissioners and township supervisors. We must not forget that it will take an argument showing returns in dollars and cents to get a majority of the taxpaying business men and farmers to open up their pocketbooks to furnish the funds needed for the prosecution of this work. They must be convinced that the investment will bring adequate returns before they will consent to the expenditure of the large sums of money, amounting in all to millions of dollars, for the construction of permanent roads. It will be necessary to conclusively convince them of the actual commercial importance and economy to be derived from the possession of such highways.

MODEL ROAD IN MOUNTAINS

The Tri-State Highway Through the Cumberland Gap.

[Written for the Manufacturers' Record.]

Typical of possibilities in road improvement in the Southern highlands is the model road recently completed over the Cumberland Mountains at Cumberland Gap, illustrated on the following page. The country to the east of the Cumberland Mountains is a good farming section, but without much market. To the west of the mountains is the city of Middlesboro and a coal-mining section without any farming land, but a good market. The road between the two was formerly so rugged and steep that there was hardly any communication, and nearly all produce had to be brought in by rail. A tunnel was built under the gap in 1890, and is now used by both the Louisville & Nashville and the Southern railways.

In 1895 the good-roads office of the Department of Agriculture was approached for assistance to construct an object-lesson road over the Cumberland Gap, where the three States of Kentucky, Tennessee and Virginia meet. Under a committee of citizens of Bell county, Kentucky; Claiborne county, Tennessee; Lee county, Virginia; the city of Middlesboro, Ky., and the city of Cumberland Gap, Tenn., the three counties voted an appropriation, and subscriptions from corporations and private individuals completed the amount of money needed. The work, commenced in the summer of 1907, was suspended during the winter, but recommenced in the spring of 1908, and completed in November, 1908. The Agricultural Department furnished an engineer to locate the road, a foreman to supervise its construction, and lent the necessary machinery. The road is 12,500 feet in length, divided as follows: 2000 feet within the corporate limits of the city of Middlesboro, Ky.; 5000 feet in Bell county, Kentucky; 4400 feet in Lee county, Virginia, and 1100 feet in Claiborne county, Tennessee. The roadbed is 20 feet wide; the macadam is 14 feet wide and 7 inches deep in the center. The cost of construction amounted to \$16,598.46.

The engineering was successfully accomplished by Mr. Fay McClure, the United States Government engineer in charge. The differences in elevation are great, the pass in the mountains being 512 feet above Middlesboro, Ky., and 345 feet above the town of Cumberland Gap. To overcome these differences and not have an excessive grade and to avoid crossing any railroad required skill and experience.



CUMBERLAND GAP EASTWARD FROM MIDDLESBORO.



CRUSHING LIMESTONE FOR USE ON THE ROAD.



GETTING THE GRADE READY FOR STONE ON KENTUCKY SECTION.



FINISHED PORTION WITHIN LIMITS OF MIDDLESBORO.



AT CROSSING OF TENNESSEE AND VIRGINIA STATE LINES.



ROAD ROLLER AND WATER CART ON FINISHED PORTION.

Modern Treatment of Roads Around Baltimore.

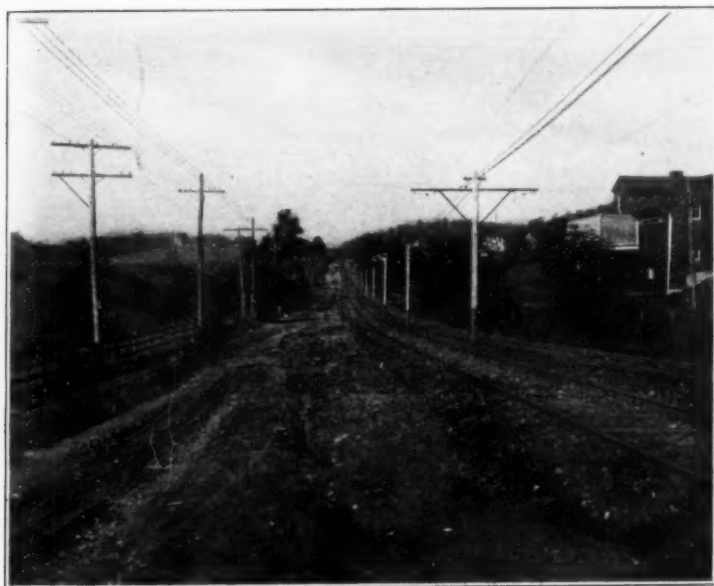
By WILLIAM H. STONE.

[Written for the Manufacturers' Record.]

On account of the systematic and comprehensive manner in which Baltimore county, Maryland, is handling its roadway problems the MANUFACTURERS' RECORD has gathered together various facts and photographs covering the work, with the belief that they would be helpful to those who are studying this all important question. Under a body known as the Highways Commission of Baltimore County the improvement of roads has been aggressively carried forward for the past several years, and the county is fast securing modern, well-constructed and well-kept roadways throughout its entire area.

The Highways Commission is composed of three members, and under them and in direct charge of all road-improvement work is a roads engineer. The present roads engineer is Mr. Henry G. Shirley, and during his administration splendid progress has been made. By profession a civil engineer and by practical experience especially well trained for this kind of work, Mr. Shirley has not only placed his department on a model working basis, but is achieving results which are winning the commendation of the people throughout the county and demonstrating the great value of modernly constructed and preserved roadways. In fact, so enthusiastic have the people of the county become over the advantages already secured that steps are being taken to submit to the voters a proposition for a bond issue of \$1,500,000 in order to undertake the improvement of roads on a much larger and broader scale, and no doubts are expressed but that this measure will be easily passed.

Under the present arrangement of raising funds for road-improvement work a



PORTION OF OLD FALLS ROAD STILL TO BE RECONSTRUCTED.

general tax levy of 25 cents on \$100 is made solely for this work. Of this amount 20 cents must be devoted to improving the roads in the district from which it is raised, while the remaining five cents goes into a general road and bridge fund and is expended as the commissioners may direct; also 25 per cent. of the taxes raised on home stocks and bonds are given to the Highways Commission for general road improvement. In some districts in which more road improvements are wanted than can be provided under the above assessments a special levy of 10 cents is made.

This method of raising funds has certain very attractive features, as it not only applies a large part of the funds to work in the district in which the money is raised, but this tends to create satisfaction and interest on the part of citizens, and is bound to have a wholesome effect in stimulating an increasing demand for roadways of the better kind.

For the year 1908 there was available for all road improvement in the county \$326,000, all of which was expended but about \$43,000, which was carried over into the present year. Of the total amount available in 1908 about \$30,500 was contributed by the State under the State-aid road law.

Mr. Shirley has conducted many experiments covering various materials for road construction and preservation. Sections of roadways have been laid according to various systems, and these have been carefully watched in order to ascertain certain definite facts concerning their wearing qualities and other features and with a view to securing the best possible roadway according to different conditions of traffic in the county.

During the present year a great deal of attention has been devoted to the oiling of roads for the double purpose of preventing dust, which had become almost unendurable to those living near the roads, and preserving the road surfaces, which were rapidly being worn away by the increasing automobile traffic. Altogether about 36

miles have so far been treated, and the results have been so satisfactory from every standpoint that every district is earnestly seeking to have its roads treated.

For the past several years as the automobile has increased in general use so has the dust become more and more intolerable to those living adjacent to the main highways, and especially on those roads lying on the outskirts of Baltimore city. An effort was made to keep down the dust with water-sprinkling wagons, but this was ineffective unless the wagons are kept all day on small stretches of road.

When the question of oiling the roads was brought up some opposition was made to this plan, those against it claiming that not only would it be unsatisfactory, but that also much damage would be done to trees and shrubbery adjacent to the roadway. Despite the opposition the work of oiling the roads was started, and it was quickly demonstrated that it was both effective and satisfactory in every way. Even though this section experienced this year one of the longest droughts in its history, there has been no sign of the slightest evidence of dust either from travel or winds.

The cost of treating the roads with dust preventives is comparatively small compared with the splendid results obtained. From work so far completed it is shown that roads can be effectively oiled for from two to three cents a square yard, this price including the using of oils having 40 per cent. asphalt and the applying on the top of the oiled roads a fine sand. The oil is applied by means of specially designed sprinklers. Light roads are oiled about twice in three years, while those having a heavy and larger traffic are oiled more frequently.

The oiling was not confined to new roads, but was applied to many of the older macadam and stone roads which were rapidly depreciating under the increasing automobile traffic, and it served the purpose of not only eliminating the dust, but also of preventing the further depreciation of the roads. It was particularly noticeable that when the oil was applied and had settled it caused the top surface to bind



RECONSTRUCTED PORTION OF UPPER PART OF OLD FALLS ROAD.

together, and automobiles now traveling over these roads fail to loosen up the stones so strongly as it is bound together. Several of the accompanying photographs show some of the older roads that have been treated, and the compactness of the top surface is readily noticeable.

Closely allied with the building of good roads is the construction of highway bridges, and much attention has been given this work during the present year. Altogether about 40 new bridges have been constructed or are in course of construction during the present year, all of them being of reinforced concrete. At first a great deal of opposition was encountered to using reinforced concrete, due to a lack of knowledge concerning its adaptability rather than to any other purpose. In one district some of the citizens went so far as to endeavor to secure an injunction to prevent a bridge being constructed of this material. But, despite all of this, the work has gone ahead, with the result that the people have realized the economy and durability of concrete, and today every district that is having new bridge work constructed is clamoring for the use of reinforced concrete.

Accompanied by a photographer the writer made a tour of inspection of the road construction and preservation work being done in the county in order to see and reproduce at first hand the exact character and scope of the work and manner in which it is being handled. For miles and miles the roads were found to be in splendid condition, especially the oiled ones. Some of the old roads were also passed over, and these, with their dust and ruts, but tended to make the improved and oiled roads stand out the stronger in contrast.

From accompanying photographs can be seen how the old roads are being improved. Some routes have been changed in order to overcome steep grades and eliminate poor drainage conditions. In the grade-reducing work many deep cuts were necessary; also at numerous places fills were made, the result being that the roads have an easy rise and fall.

Stretches of improved roads were also shown with and without the application of oil, and the advantages of the oil treatment can readily be seen even in the photographs. Indeed, to one traveling along the oiled roads a lack of dust on the trees and shrubbery immediately adjacent tends but to emphasize how effectively these oils do their work.



OLD ROAD OF BALTIMORE-WASHINGTON BOULEVARD NOT YET REBUILT.



WORKING ON THE BALTIMORE-WASHINGTON BOULEVARD.



COMPLETED LINK, BALTIMORE-WASHINGTON BOULEVARD.

In several illustrations are shown a tar macadam road in course of construction. Several stretches of this character of road are being put down and will be closely watched to determine its durability and effectiveness. A number of brands of tar are being used in making this particular kind of road, and these will be carefully recorded for future reference in constructing roads of similar material.

Roads Engineer Henry G. Shirley, in speaking of the methods followed in the county road-improvement work, said:

"The control of the roads and streets in Baltimore county is in the hands of the Highways Commission, consisting of three commissioners, a secretary, road engineer and 15 road supervisors. There is a supervisor over each of the 15 districts, and



REBUILDING A ROAD WITH TAR MACADAM IN THE GREEN SPRING VALLEY



ANOTHER VIEW OF GREEN SPRING VALLEY TAR MACADAM CONSTRUCTION.



SHOWING CHARACTER OF MATERIALS USED IN MODERN ROAD BUILDING.

each district is divided into from two to six sections, and in each section there is a foreman, with from three to six men. The road supervisor takes general supervision over all work being done in his district outside of work being done by contract, and it is his duty to see that the roads and bridges are kept in repair. The amount spent in the county last year for roads and bridges was between \$300,000 and \$325,000.

"The county has a total of 1202 miles of roadways, 573 miles being stone roads, 107 miles macadam and the remainder earth. The roads in the outlying districts where the road fund is small are principally earth roads, with the soft places stoned. The roads are gone over from once to twice each year, nicely crowned up with a road machine and all the loose stone picked off, and drains, culverts and pipes cleaned so as to give good drainage. Any soft or wet places are filled with large stone, then covered with a layer of broken stone and thinly sprinkled with earth as a binder.

"The roads in the suburban section are principally macadam or stone, and are maintained, where ruts or depressions occur, by spiking up or scarifying the stone surface and refilling the ruts or depressions with additional crushed stone, and

plying this oil, that all of the more important macadam roads that were in good condition leading out of Baltimore city and other thickly-settled points be oiled. In pursuance with this recommendation there have been about 30 miles of road oiled with a 40 and 50 per cent. asphalt oil, the cost ranging from $2\frac{3}{4}$ to $3\frac{1}{2}$ cents per square yard of surface. The oil is very sticky for the first day or two, but soon soaks into the ground and the light oil evaporates, leaving a surface resembling sheet asphalt and entirely free from dust. The surface is thinly covered with washed sand or fine gravel, which readily incorporates with the oil, making a rough,



A STUDY IN DUST WHERE OIL IS LACKING.

thoroughly sprinkling and rolling until the new stone is solid. If the second course is generally worn, a surface of stone is placed over the entire old stone bed.

"All new macadam is built under the county's standard specifications, calling for a six or eight-inch macadam, the thickness depending upon the character of the sub-soil. In laying out new county roads special attention is given to the location so as to provide good drainage and easy grades.

"Experiments have been made for the last three years in applying asphalt oil, Tarvia, tar and refined asphalt to lay the dust and preserve the macadam surface against the destructive action of the motor car. As the county surrounds the great city of Baltimore, with its thousands of motorcars, it became imperative that speedy action be taken to preserve the surface and life of our macadam roads. Experiments with asphalt oils containing from 40 to 50 per cent. of asphalt having been made with gratifying results, the engineer recommended, owing to the small cost of ap-



A STRETCH OF OIL-TREATED HIGHWAY, SHOWING FARMING CONDITIONS.



SHOWING IMPROVEMENT BY CUTTING AROUND A RISE. ON THE RIGHT HAND, THE ABANDONED ROAD, ON THE LEFT, THE NEW ON AN ENGINEERING BASIS.

gritty surface and prolonging its life. The rapidity with which this oil can be applied and its dust-laying qualities makes it desirable for road maintenance. The experiments with heavy asphalt oils and tars lead the engineer to believe that a bituminous concrete for the second and top courses on all new work subject to heavy motor traffic is necessary and preferable to the pouring process.

"It is the policy of the county, where it is necessary to replace any old bridges, to rebuild with concrete or reinforced concrete. There have been 102 concrete bridges and culverts in the county erected in the past four years, and 35 are now under contract, the greater number being practically completed. Included in this number is a twin arch bridge with two 50-foot spans. All plans and designs for bridges and other work are prepared in the office of the roads engineer. All bridges are designed for a 20-ton road roller with the required factor of safety. All bills for labor and material must be approved by the roads engineer before payment can be made."



HEAVY CUTTING WAS NECESSARY ON THIS LONG STRETCH.



CHANGES WROUGHT BY A HEAVY CUT.

Proposed Road System for Southern Appalachians.

By JOSEPH HYDE PRATT, State Geologist of North Carolina.

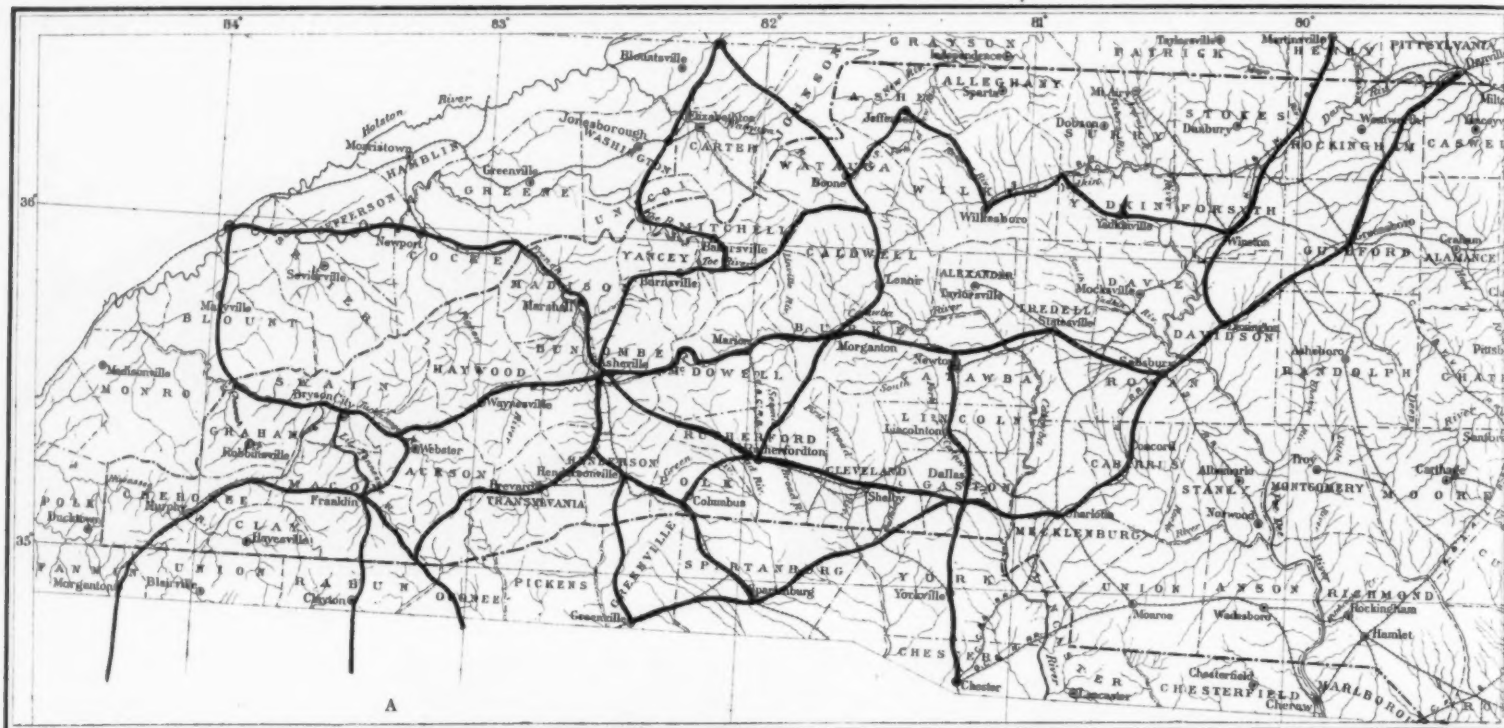
[Written for the Manufacturers' Record.]

There is, perhaps, no section in the South in greater need of improved roads than the Southern Appalachian Mountain region. Although in certain sections of this region many miles of improved roads have been constructed, those in one county are not connected with those in another, so that from the tourist's standpoint it is almost impossible to take extensive drives or automobiling trips over them for pleasure. Up

The interior districts of England, France, Italy, Switzerland, Germany and Holland are all accessible, even to the most remote villages, over roads with hard surfaces, and this accounts in part for the popularity of these countries to the tourist.

Our Southern Appalachian Mountain region should be attracting tens and hundreds of times as many tourists as it is at the present time, as the tourist desires to come and drive or motor through this region, but the country has failed to give them the good roads that make this possible. At the present time the visitors to this region confine themselves almost entirely to those places situated near the railroads, but these are few in number compared to what there would be if a system of roads was constructed which would make all sections of the mountain region accessible.

Coaching and automobiling for pleasure are not fads of short duration. They are



OUTLINE MAP OF PROPOSED MOUNTAIN HIGHWAYS IN FOUR STATES.

to the present time there has been no attempt to systematize improved road construction in this region with the idea in view of obtaining a system of improved roads which will be continuous from one county to another, and thus make it possible for the rural sections to be connected with city and town by good roads, and also make it possible for the tourist who desires to take extensive driving trips through the mountains.

Sufficient consideration has not been given to this Southern Appalachian region as to the great benefit it would derive from an extensive system of good roads. Taken as a whole, this region is not a rich agricultural country nor a rich mining district. It has been very rich in timber supplies, but these are being used up very fast. This region has one asset, however, that is very valuable, but it is not recognized at anywhere near its real value. I refer to the climate and the scenery. This Southern Appa-

lachian region has been most fortunately and richly supplied with these natural attractions that are demanded by tourists and pleasure-seekers, but it lacks the one great necessity that will make these natural attractions available to the tourist, namely, good roads. The tourist trade, and I include in this the automobilists and those who go coaching, is a most vital asset of many European countries, and the American tourist has added a very large amount to the income of those countries. A German statistician gives these figures regarding the value of the tourist trade:

Switzerland entertains during the year 3,000,000 visitors, who spend \$30,000,000. Italy, the Riviera and Spain between them receive \$60,000,000 from their visitors. The various great capitals receive \$25,000,000 by entertaining their visitors, 900,000 of whom visit Paris, 600,000 visit London, 500,000 visit Berlin and 350,000 visit Vienna, etc., over the Continent. The seaside and lake resorts receive upwards of \$16,000,000 from their visitors.



A RE-LOCATED ROAD.

lachian region has been most fortunately and richly supplied with these natural attractions that are demanded by tourists and pleasure-seekers, but it lacks the one great necessity that will make these natural attractions available to the tourist, namely, good roads. The tourist trade, and I include in this the automobilists and those who go coaching, is a most vital asset of many European countries, and the American tourist has added a very large amount to the income of those countries. A German statistician gives these figures regarding the value of the tourist trade:

Switzerland entertains during the year 3,000,000 visitors, who spend \$30,000,000. Italy, the Riviera and Spain between them receive \$60,000,000 from their visitors. The various great capitals receive \$25,000,000 by entertaining their visitors, 900,000 of whom visit Paris, 600,000 visit London, 500,000 visit Berlin and 350,000 visit Vienna, etc., over the Continent. The seaside and lake resorts receive upwards of \$16,000,000 from their visitors.



CHARACTER OF ROAD AND CULVERTS ADVOCATED.

country itself, as it will be possible to haul produce to and from market at a much lower cost.

During the past six months an attempt has been made to awaken an interest in the counties composing the Southern Appalachian region of the different States to the need and great value of the system of roads indicated on the accompanying map, and the result has been that a convention was held in Asheville, N. C., October 5-7 to discuss ways and means for the construction of this system of roads. There was presented at the convention a chart, showing the number of miles of road that each county will have to construct to complete this system of roads, and also approximate cost per mile, and it might be well to state here that the roads advocated are to be on the average 30 feet wide from ditch to ditch, with a maximum grade of not over 4 per cent. The surfacing of the roads will vary according to their location, amount of travel and available materials, and will be either of gravel, sand-clay or macadam.

Knowing that such a system of roads will be a most profitable investment for the counties, as well as give them the best means of transportation, will it be possible for the counties to construct the roads? I believe that it is not only possible for them to do this, but that it will be done. The first connected road leading from the Piedmont region through the mountains to the Piedmont region on the other side will be the strongest argument for the continuance of the construction of other portions of the system of roads, and will cause the other portions to be rapidly constructed. It now looks as though the first line that will be completed as a through road will be from Charlotte to Gastonia, Shelby, Rutherfordton, Fair View, Asheville, Marshall and Hot Springs, N. C., to Newport and Knoxville, Tenn. With this road constructed it will not be long before Asheville and Hendersonville, N. C., and Greenville and Columbia, S. C., will be connected; in fact, all the roads recommended and shown on the accompanying map will be constructed.

At the convention the system of roads was described in detail, and the first thing taken up will be to raise the revenue from the States, counties, cities and individuals for the actual surveying of the system, so that the roads can be accurately located and plans and specifications drawn up for their construction, so that each county can be notified what its cost will be to finish its portion of the road. This work should be under the supervision of one man in each State, and in North Carolina it would probably be under the supervision of the Highway Division of the Geological Survey, and under similar departments in other States. Of course, the actual construction of the roads will have to be done by each county, with, perhaps, a certain amount of State aid—at least to the extent of engineering assistance. During construction the roads should be under the supervision of a competent road engineer, who would see that they are built according to plans and specifications, and that the roads in one county are joined to those of another.

The highway commissions and other organizations in each State will send representatives into the different counties urging the people to make provision for the construction of the roads and to do all in their power to have the road constructed at an early date. It is fully realized that it will mean a lot of hard work before this system of roads is completed, but by concerted action on the part of the State officials with the county officials I firmly believe that we shall see this system of good roads constructed in a very short time.

New England Roads as Examples for the South.

By ALBERT PHENIS.

[Written for the Manufacturers' Record.]

Whenever anybody talks of good roads the discussion turns to those of New England, for the good roads of this section are so notably excellent as to command national attention. A demonstration of this fact was given when B. F. Yoakum, chairman of the Rock Island-Frisco system, brought a party of Southwestern Farmers' Union representatives to the East that they might be inspired with the desire for good roads in their own section. Much of their inspection was devoted to New England, and so greatly were they impressed with what they found that a Southwestern Good Roads Association was formed while they were in New England, and plans were laid for a systematic spread of the good-roads propaganda throughout the States of Missouri, Arkansas, Oklahoma, Louisiana and Texas. From the results of this trip an unprecedented activity in good-roads construction in those States seems certain to follow, for a conclusive demonstration of the benefits conferred by good roads was afforded at every stage of the investigation.

While Massachusetts leads New England in number of miles of good roads con-



STATE HIGHWAY, GLOUCESTER, MASS.

structed, and in the perfection of plans for the extension of the State highways system, all New England is active in the work of road improvements, and a 1000-mile track, "an ideal tour," as it is denominated, has been connected up, over which the automobile tourist may spin with comfort from New York-city through Western Connecticut, Massachusetts and Vermont, up to the White Mountains of New Hampshire and into Maine, returning along the eastern shore of New England. The Massachusetts system of State roads now covers about 800 miles. According to the plans of the commission, it will take about as many more miles to give a complete connecting system of State highways. When this is done, in connection with the roads the towns have jurisdiction over, there will not be a well-traveled road in the State that is not an improved highway, constructed and maintained in accordance with the best standards of the present day.

In Rhode Island there has been adopted a State scheme for good-roads construction, under which work is now being done. Unlike the Massachusetts plan, by which the roads of a given section are improved only on petition from the district, Rhode Island's

system of good roads will be worked out as a whole by the State commission on plans already adopted.

Connecticut is at work on a comprehensive plan of good roads building, in addition to those already constructed. Vermont is doing something, but only in a small way as yet. New Hampshire has been improving its roads for some years, and Maine has recently started on a comprehensive plan for State road construction.

It is in Massachusetts, then, that the great development has occurred, and here the good-roads movement has been conducted for the greatest number of years and in accordance with the most scientific principles. While in some of the States outside of New England, notably New Jersey, there has been a marked development in good-roads construction, nowhere has there been a more comprehensive system adopted, and nowhere have the benefits to the section been so conspicuous. A vastly increased summer tourist business has been developed, for one important item, and localities heretofore inaccessible and sparsely occupied have been brought into close contact with the outside world and transformed into highly prized residence sections. A case in point is the transformation of Cape Cod, an out-of-the-way place up to 16 years ago, and sel-



STATE HIGHWAY, BEVERLY, MASS.

dom seen by visitors. Now there are 75 miles of good roads on the Cape, extending all the way to Provincetown, and there has been so great an influx of summer visitors, many of whom buy property and improve it for summer tenantry, that the whole Cape has changed its character, property has been given a commercial value and the entire section is growing in importance and popularity as a summer resort.

All through New England, wherever good roads have been constructed, the same story of development is to be told. New hotels have been built, or old ones improved and remodeled; the farmers have been called on to furnish foodstuffs to meet new market requirements; unoccupied tracts on mountain, in vale or by the sea have been purchased and built upon, and improved places, heretofore remote and unsalable, have been snapped up by the visitor from outside—not infrequently from some far Southern State.

Putting aside the permanent and continuous advantage to the people who live in New England—the farmers, the fruit growers and the men who go from place to place on business—the benefit to New England in the way of an increased and high-class tourist trade would alone justify the expenditure for good roads that has been made.



STATE HIGHWAY, IPSWICH, MASS.

Thousands of tourists from all parts of the country are in New England during the summer, spending in the aggregate millions of dollars. And herein is a not inferior point to be considered by communities of the South. Were Northern tourists able to travel in the same way through the South in winter time, not only would they spend millions of dollars there on these visits, but by coming to know the South through an automobile trip, as cannot possibly be done from a Pullman car window, there would follow a stream of investment not to be secured in any other way.

The South is undertaking to develop a great winter resort business. This means a larger home market for the produce of the farmer, the employment of people in all lines of work connected with hotel operations and hotel building, and in itself is well-nigh as helpful to Southern progress as the building of factories. New England has realized how to develop the resort business as has no other section of the country, except possibly California, and its popularity as a summer resort section is increasing enormously year by year.

Exact statistics as to the number of automobile tourists who visit New England during the summer are not available, because under the law visitors are not required to

register unless making something of a stay. In Massachusetts the old law gave them seven days, and the new law gives them ten. As many as 2000 visiting automobiles have been registered in a season in Massachusetts, so that the total number making trips into New England must be a good many times that amount. Besides this item is the permanent automobile development, in itself an element of great importance in relation to road-building, as the general use of motor cars goes hand in hand with the construction of good roads. In addition, there are the thousands of machines of the 400 dealers, which are not required to be registered. These figures give hardly more than a suggestion as to the extent of travel by motor car in all New England, for many thousands of tourists visit the section who have no cars of their own and who utilize the public machines for trips of varying length. The statement is made by A. B. Fletcher, secretary of the Massachusetts Highway Commission, that the average automobile traffic over the Massachusetts State highways in summer is 115 motors a day.

So important has the automobile tourist become that the hotels have combined in the publication of illustrated and artistic pamphlets descriptive of the various routes of



STATE HIGHWAY, BEVERLY, MASS.

especial interest, with complete road maps, facts about localities, scenic spots and historic places, and information as to the desirable and convenient hotels along the routes. Thus specialized and scientifically treated, the summer resort business of New England has become one of the distinctly important elements in the prosperity and wealth production of the entire section.

The good-roads movement of Massachusetts, in an organized and comprehensive way, began in 1892, with the passage of a State law to establish a commission to improve the highways of the Commonwealth. This was before any idea of the latter-day automobile traffic was thought of, the object of the movement at that time being simply to bring town and country in closer touch by the construction of better wagon roads, in accordance with that enlightened self-interest which from the foundation has been conspicuous in Massachusetts legislation.

Three commissioners, men of the highest engineering and scientific ability, were appointed to make a report on the entire subject of good roads, and they submitted to the Legislature of 1893 a most comprehensive treatise on the subject. The keynote of the situation is struck in the opening sentences of the introduction to the report:



STATE HIGHWAY, GLOUCESTER, MASS.

"Roadways are at once the agents and the index of the culture to which a Commonwealth has attained. All social and economic life above the most primitive conditions rests upon the transportation of human beings or of goods."

In the report every feature of good road building was treated—the desirability of good roads to begin with; then the topography of Massachusetts in relation to highways; the condition of the State roads of that time; the economics of Massachusetts roads; methods of construction, and numerous tables and statistics bearing on the subject in all its phases.

On the strength of this report an act creating the Massachusetts Highway Commission was passed by the Legislature of 1893, and except as to a few amendments of generally minor importance, this is the law under which the commission has operated to the present day. The board consists of three members, appointed annually by the Governor for three years, and in spite of the fact that the salary is a modest one, the State has been able to secure the services of the most expert specialists. W. E. McClintock, one of the members of the first preliminary commission, was continuously a member of the Highway Commission from its inception till he resigned last year to perform a labor of love in rehabilitating as chief engineer his home town of Chelsea, following

its partial destruction by fire. So constructive and persuasive has been the work of Mr. McClintock that he is by common consent acclaimed the father of good roads in Massachusetts, and the type of modified macadam road adopted generally throughout New England is referred to by experts as really a "McClintock" road rather than a macadam.

According to the Massachusetts plan, the Highway Commission exercises general supervision over the State roads, jurisdiction extending even to street-car lines, telephone and telegraph lines and the planting of shade trees along the highways. Action is taken on road construction on petition from the County Commissioners of a county, the Mayor and Aldermen of a city or the Selectmen of a town, and the Highway Commission determines whether public necessity and convenience require that the road petitioned for shall be laid out and taken charge of by the Commonwealth. With the work done and petitions on file nearly all the main lines of travel throughout the State are now covered, an indication of the public recognition of the necessity for good roads.

On giving approval of any road petitioned for the commission assumes entire con-



STATE HIGHWAY, GLOUCESTER, MASS.

trol of the highway, which is constructed and maintained by the commission. Cities and towns through which any State road passes are given 10 days in which to take the contract for that part of the work, failing in which the commission makes contract, after advertising for bids, and the work is done under the direction of the commission. The commission supervises all the work carefully, and usually a resident engineer is placed in charge of each section of road. All the expense of the highways is paid by the Commonwealth, but the law provides that one-fourth of any money expended in a county for a highway shall be paid back to the Commonwealth by the county within six years, with interest. The money for road construction is raised by the issuance of 30-year bonds. Up to 1903 annual provisions were made, but in that year a \$2,250,000 issue was authorized, one-fifth of which was to be spent annually, and in 1907 \$2,500,000 on the same basis. The expenditures on construction to date amount to about \$7,500,000. This includes bridges, which are now exclusively made of reinforced concrete, and the planting of trees to the total number of about 15,000, for which an annual expenditure of \$5000 is made. Leaving out bridges, the average cost of a standard macadam-



STATE HIGHWAY, GLOUCESTER, MASS.

ized road—grading, drainage and all—is about \$8000 a mile. There has been expended by the commission in maintaining the roads about \$1,000,000. It is estimated that \$685,000 will be required for repairs during 1909, and as more than 50 per cent. of the damage is ascribed to motor cars, a proposition to have the automobile fees increased was carried at the last session of the Legislature. Last year the fees amounted to about \$155,000, less expenses of office maintenance. After January 1, when a system of graded fees goes into effect based on horse-power, it is calculated that the net revenue from this source will amount to something like \$225,000. Also after January 1 all fines for speeding will go direct to the State fund for maintenance of roads.

While the time of the commission is mainly taken up in laying out, constructing and maintaining State highways, the commission is required by law to compile statistics relating to public ways in the Commonwealth; to map certain roads, to collect and collate information relative to materials suitable for road-building, and to give advice gratuitously to officers having charge of the town and city roads concerning methods of construction and maintenance of their roads. The commission is also required to make an annual report to the Legislature covering the work done and containing recommenda-

tions as to the general policy which should be adopted by the Commonwealth relative to State highways.

The latest report of the commission, dated January of this year, devoted a large portion of its space to a discussion and consideration of experiments now being made with dustlayers and road preservatives. The ubiquity of the automobile has created an entirely new condition, so that a road surface splendidly adapted to horse-drawn vehicles goes to pieces under the automobile in a fraction of the time it would have lasted otherwise. Scientific and advanced as are the road builders and highway commissioners of Massachusetts, it is a fact necessary to note that no conclusion has yet been reached as to the best material or method to adopt for surfacing a road so that it may be made durable and at the same time satisfactory for both horse and automobile use. While experimentation is being carried on in a very thorough manner, and out of the various experiments at least what is the most desirable of available materials and methods may be determined, yet there is no immediate prospect of a final conclusion being reached, for following the evolution of the self-propelled machine in Europe it is considered altogether likely that long trains of heavily loaded wagons, hauled by traction engines, will be seen on the highways here with the expansion of the good-roads system throughout the States and the connecting up of through trunk lines. With the cleats or cross bars on the driving wheels of such traction engines a new and vastly greater destructive force than is the present pneumatic tire of the automobile would be introduced, and the enormous weight carried by the trailers would call for road foundations of the most substantial sort—a test some of the roads of today would probably be unable to stand.

It is of vast advantage to the rest of the country that the entire problem of good roads, present and perspective, is being so thoroughly and ably worked out by the Highway Commission of Massachusetts. While there is an abundance of road-making materials in Massachusetts, such as may not be found in some of the alluvial sections of the South, there are still problems to face here which are absent from the South, an important one of which is the fact that the ground freezes here in the winter time to a depth of five or six feet. The road builders of Massachusetts take the ground that some form of bitumen is essential to provide a roadway reasonably dustless and able to withstand automobile travel, and in this connection a great market for Texas oil has been created, thus helping to develop one more important industry of the South. In practically every State in the South there is an abundance of good road-making material available, so that the South generally is at no disadvantage so far as natural conditions go. There are bogs and marshes, sandy stretches and flinty hills here as well as mountain ranges, so that the road builder of New England acquired a proficiency and encounters a variety of experiences that fit him for meeting almost any condition found anywhere. Herein lies the fact that the reports, the findings and the operations of the road builders of Massachusetts are of the utmost value to the rest of the country, and not more so to any section than to the South.

RAILROADS AND THE PUBLIC ROADS.

Potomac-to-the-South Connections With the Southern Appalachian Region.*

By M. V. RICHARDS, Land and Industrial Agent, Southern Railway.

The interest now shown in the improvement of the country's highways is gratifying to all concerned in the general advance of the country. It is certainly a matter of congratulation on the part of those interested in the material, educational and moral progress of the South that the people of this section are so awake to the question of road-building. There is no movement before our people which promises such splendid results to the whole country as that of establishing a thorough system of good highways throughout the United States. If we could have anything like a complete system of such highways I believe that it would result in the doubling almost at once of the annual returns from our farms and factories, the doubling of the value of all our lands, and in every way making better the condition of our whole population. The change would be especially noticeable in our agricultural districts. A thorough system of improved roads would in a short time put practically every acre of available land into cultivation; into the best kind of cultivation. It would within a brief period practically revolutionize for the better our country schools and the entire character of our farming districts and small towns and villages. The country life would be more attractive and more profitable; it would come to be the preferred life of a majority of our people, and there would not be so great a discrepancy between the value of rural property and that of the towns and cities. Surely there is nothing to which the attention and the best effort of everyone can be so profitably paid as the question of good roads and the means of securing them.

The South and Good Roads.

The greatest need of the South today is a proper system of highways. That is true, too, of the whole country. The South is little, if any, behind other sections of the United States in the matter of good roads, when you consider the large amount of work that has been done by many counties in the various States. North Carolina, South Carolina, Georgia, Florida, Alabama, Tennessee, Kentucky, Virginia and Mississippi each have a number of counties which have gone about road-making intelligently and have achieved most satisfactory results. More money has been expended in some of the older Northern States on improved highways, and several of them have had the start in the matter of the most intelligent and advanced legislation on road-building and efficient State aid provisions. Now there are in some of our States so-called State aid laws, and, in addition, provisions which permit the bonding of counties and townships for road purposes. In some of the States, too, there is the wise provision giving the highway commission or State highway engineer the veto power; that is, the right to approve or reject the plans for location and improvement of roads, a provision which should prevent the waste of effort and money from improper location and bad construction plans. The South has some manifest advantages in securing at an early day a splendid and comprehensive road system. There is an abundance of good road-building material well scattered throughout the different portions of the various States; there is the choice of several kinds of roads, with the proper materials and the proper conditions to make different kinds practical, and most of the Southern States have learned to put their convicts at work building roads. If there is more money in the average commu-

nity in New England or the North Atlantic or Central States than in the Southern community, we can build our roads at a considerable less cost.

What is needed in this matter is the thorough education of our people to the need and the importance of improved roads, to their real value, a steady agitation until the people move in earnest; the study of the best means of securing the roads. With the proper sentiment throughout the farming districts in favor of first-class highways a way will be found to secure them. The people will see that any needed laws are enacted, and it will be found that the cost of construction will not prove burdensome.

Interest of Railroads in Improved Highways.

That the railroads are vitally interested in the improvement of the common highways of the country is certain. A permanent system of good roads means only less to the railroads than it does to the people, to the farmers and the business men of the towns who make direct use of them. The highway is the feeder of the railroad and the river transportation systems. They do two things which mean business for the railroads. They build up the tributary territory; they increase the population and the production of the sections which support the railroads; by making the people more prosperous they add to the demands of any given section, and that means not merely a greater movement of freight, but a movement of a larger variety and to a very considerable extent of a higher class of traffic—the kind of traffic that is the most desirable. Good roads will do more than any other thing to develop the territory of the South or of any other portion of the country, and that development will mean more traffic for the railroads; it will mean for your various sections better railroad facilities in the way of improvements on existing mileage and the addition of new mileage. The second thing in which they will help the railroads is in creating a more even movement of traffic throughout the year. As you know, the farmers of almost every section of country are compelled, largely on account of the prevailing impassable roads during the winter months, to rush their crops to market in the fall before the rainy season comes. You people of the clay country of these mountains know what the wet seasons do to your roads. This necessity of moving farm products at one season congests traffic during the period of marketing, creates delays and unusual expenses to the railroads, requires greatly increased investments for rolling stock and warehouse room. It adds to the cost of railroad handling, and so decreases the profit of the transportation company. It is also a tax upon the farmer, compelling him to take time from his farm which could be better spared during later months, and undoubtedly decreasing the returns by the lower prices which enforced marketing at a given period causes.

Yes, the railroads are vitally interested in the improvement of the country highways, for they mean enlarged prosperity to them. It is for this reason that railroad men have studied the highway problem; it is for this reason, even if the men at the head of your railroad systems were not interested in the improvement from the standpoint of good citizens, that they are ready to do what they can to secure for the districts which they serve the advantages of the best possible roads leading out through the villages and farms.

Better Roads in the Mountain Sections.

In the work of this convention the railroads which have lines into this Southern Appalachian region are especially interested. The improvement of your mountain highways is a proposition which differs in many respects from the general highway scheme, for a system of good roads in this region will mean a somewhat different development than is to be brought about in many other portions of the South. It might be said that by opening up the mountain section to the coach and the automobile it will mean a double development, for to the increased prosperity of your agricultural and industrial interests will come a development of your tourist and resort business far beyond anything you now have or even suspect. The beauties of climate and scenery which have attracted visitors from all over the country to this section have given the railroads a great business. As a matter of fact, it is the railroads which have made this country accessible and made possible the development of your resort business. If you will add to its accessibility by building such a system of roads as you should have, even for your own internal wagon commerce, the railroads will share with you the benefits. But remember this, your share will be far beyond that of the railroads or of any outside interest or people.

This great Southern Appalachian region, this "Land of the Sky," the Sapphire country, East Tennessee, North Georgia and all the mountain region from the Potomac to Alabama, has more to gain from a system of properly constructed highways than any other section of the country. That means, in other words, that the building of good roads will bring you an immense profit upon any investment you may make in them. If this is so, and I believe it is, you should be the first to move in building first-class roads; you should bend every effort, exhaust every resource, almost, in establishing throughout the mountain sections roads opening up every community.

This mountain country has four rich resources which in the past have brought it prosperity, and which will bring it far greater prosperity and advancement in the future. These are its timber, its mineral wealth, its farm and fruit lands and its wonderful combination of climate and scenery, which make it one of the most attractive and interesting regions to be found anywhere, and which as the years go by will bring here increasing numbers of visitors and add to the number of permanent residents of the most desirable character, make it a favorable location for schools and colleges, and in many ways work to its advantage.

Climatic and Scenic Advantages as an Active Resource.

This last resource is, perhaps, to be your greatest wealth producer in the future, or at least the cause of your greatest development. America is a rich nation, the richest in the world; her people are able to spend more money than those of any other nation on recreation and pleasure and in the building of summer and winter homes and in the creation of fine country estates. Our travelers add millions each year to the wealth of Europe in their journeys to the Old World and in their visits to the watering places, the society centers and the scenic regions of the Alps, the Pyrenees and the Northern lands. They are spending a much greater amount in their travels at home and in their recreation and play at Northern and Southern resorts and in the quiet places which they seek for rest. Many of these pleasure and rest-seeking travelers come annually at some season of the year into this mountain region, and they have well advertised its beauties and its attractions. You know how much they have added to your prosperity. You have, perhaps, some idea of the great amount of money which has been spent in building and running your hotels, which has been disbursed in your towns and villages, which has been distributed to your farms and orchards for the supplies necessary to

*An address before the Southern Appalachian Good Roads Convention, Asheville, N. C., October 6.

take care of them. The aggregate each year is millions of dollars. Asheville, Hendersonville, Tryon and other places owe their greatest prosperity to this trade. You have seen the great Biltmore estate created and many smaller homes located by men of wealth from almost every section of the county; you have witnessed the location of country estates, the coming of homeseekers drawn here by your climatic advantages, until you have in many of your communities populations drawn from every section of the United States and settlements of people of an unusually high degree of culture and attainment. The pioneers in this movement found few facilities in reaching the different portions of your mountain region. They have joined with the older inhabitants in creating these facilities. Every new avenue of communication, every opening up of additional sections and attractions has meant increasing numbers of visitors and permanent residents.

The Automobile and Coach in the Mountain Country.

The great need of this region in attracting additional visitors is, you will agree with me, a system of good roads extending throughout its length and breadth. Such a system would within a short time double the resort business in Western North and South Carolina, North Georgia, East Tennessee and the entire belt of mountain country, carrying with it the accompanying development of all your business and farming interests. But more than that is needed. This is the day of the automobile. Only a short time ago the plaything of the rich, the terror and pest of the rural regions, it has already become a business necessity, and is fast becoming an aid to the agricultural development of the country. It will rapidly become a still greater necessity; it will find larger use and play a still more important part in the advance of all our various industrial and agricultural interests. The automobile is here to stay. It is welcomed by the farmers in many sections of the country and used by them in various ways; it will have a far-reaching influence in the future of this mountain region. It is to the interest of every resident and every landowner to see that facilities are given which will make it a more common sight on your streets and on your roads.

The automobile permits the tourist to visit sections which the regular lines of travel do not; it has added greatly to the business of the resorts of the country. The automobilists are good-roads missionaries. They must have better roads to make their travel agreeable and safe. They avoid those sections which have no good roads, and those sections are the losers. I want to see it made practical for the men and the parties who travel in their machines or take them with them when they go to pleasure or health resorts to get into this mountain country, to know it thoroughly, not for their good and their pleasure, but for the benefit of the people and the property-owners of this region and for the aid they will give in its development. It is certain that ere long there will be roads or a system of roads good enough to permit the travelers in automobiles to go from New York city to Atlanta and the Gulf and to Southern Florida. If a splendid course of connecting highways following, penetrating and crossing the mountains of the Southern Appalachians is built, they will come into this section; they will spend vast sums of money with you; many of them will become property-owners and permanent residents.

Great Highways from the Potomac Through the Mountains.

It would not be an impossible task for the people of the Southern Appalachian regions to build one or two great highways, each community adding its link, running from the Potomac to Atlanta, and on to Birmingham. If we could build a system of good roads reaching from Washington down through Piedmont Virginia, North and South Carolina to Atlanta and Birmingham, and from Harpers Ferry down the Valley of Virginia to Bristol, Knoxville, Chattanooga, Huntsville and Birmingham, with connecting links running across the mountains and joining the principal cities and towns and resort regions, with branch roads to important places outside the Mountain and Piedmont sections and to the coast cities, then add to it a line from Knoxville or Bristol through the picturesque regions of Eastern Kentucky to Cincinnati and Louisville, it would be the grandest thing that could be accomplished for the development and the prosperity of a great portion of the South. The people of the mountain sections would be the special gainers. Is such a thing visionary? Is the construction of such a system of roads beyond your ability and that of connecting sections? I hardly think so. If you once become convinced as to the value of the roads and their necessity, you will be surprised at the ease with which you can build them.

Benefits Which the System Would Accomplish.

A system of roads such as I have sketched would at a rough estimate cover about 4000 miles. It could be constructed at a cost of \$10,000,000 to \$15,000,000 under your system of working convicts and the advantages you have in cheap road material at hand along almost every portion of the various routes. A considerable mileage has already been constructed in various sections which would form portions of the system. The building of the rest would not all come at once; it would necessarily be the work of a number of years. Seven States and a hundred counties would divide the cost, so the amount to be invested by each separate community would not be beyond its ability, and by a system of bonds would mean but a comparatively small annual outlay for the next 20 or 30 years.

Now, what would be the result of such a system? What would it mean to you and the people of other sections which the various portions of it would reach? The summer guests in New Hampshire pay to the hotels of the White Mountain region four months in each year \$7,500,000, which is, of course, only a part of the amount they spend there. The Florida season brings millions into that State. Here in Western North Carolina the amount now spent by visitors is very large. If the mountain country were opened up as I have outlined by fine roads, I believe there would be added to the annual income of its territory not less than \$10,000,000 within a very short time, and the amount would grow larger year by year. That income would be distributed to farmers and merchants, to all the owners of property and to the men in every line of business; it would mean new hotels and all kinds of private improvements. The increase in your profits from the added tourist business would more than pay the interest and take care of the principal of any bonds you might issue for good roads, or for any additional taxation you might levy, and the men who would be drawn in from the outside as permanent residents would help you pay these taxes; in fact, they would pay a large part of them, for they would largely be investors in your best property, which you would sell to them at a good profit over present prices.

Fruit and Farming Sections of the Appalachians.

That is only one side of the case. This mountain section is one of the finest fruit and stock-raising regions of the United States, and in many portions of it the lands are

not excelled for profitable general farming. The system of good roads would make available large areas not now utilized; it would bring into these sections from every other portion of the country the best class of farmers and fruit growers, men who would be attracted by the conveniences and the profits given by good roads, and you would double and quadruple your agricultural and horticultural productions and your wealth. Lands now worth but a few dollars an acre would be in constant demand at much higher prices by apple-growers and stock-raisers and seekers after country homes. Your towns would grow, and you would have a prosperity which would pay you twentyfold and more for all your outlays for roads. Money spent for good roads is simply an investment, a permanent investment which is absolutely sure to return the largest profits. This immediate section of the mountain country would probably be the greatest gainer from the construction of this system of highways, and therefore should be the leader in the work. If you will move, the people north and south of you will join in the road campaign and the road-building. If you do not move, you will soon be bringing up the rear in a great forward march for better highways which are starting all over this Southern country.

In considering my remarks remember that I have but hinted at the good results which will come from such a system of highways. I would impress you that the greatest benefits would be in the way of better markets and larger consumption of their products, easier and cheaper market facilities, better farming conditions, better stock, increased value of the lands, more money in the banks and resulting improved homes, comforts and schools.

Problem to Be Solved Largely by Localities.

By W. L. GLESSNER.

[Written for the Manufacturers' Record.]

The improvement of the common roads of our country is not a new question. The subject is as old as our Government, and in its early history engaged the attention of our ablest statesmen. All the great minds of the period from 1802 to 1832 were one in conceding this question to be of the highest importance and of the most far-reaching effect in determining the happiness and prosperity of the American people. It is today, as it was then, a question which demands the earnest consideration of every American citizen. The importance of good roads as a means of communication was early realized by the National Government, and the result was what is known as the "National Road," extending from Washington to Indianapolis, and so well was this work done that today it is an object-lesson in good road building.

The Southern States were among the first to engage in the work of good road building, and the "turnpikes" of Kentucky were for many years the models upon which good roads were built in other sections, and in a measure served as models for the railroads which followed, as they were public highways on which toll was charged for their use.

The advent of the canals and railroads for a long time overshadowed the importance of the common dirt roads as a means of transportation, and displaced them as a means of communication between counties and States. It is true that all this time we have had a legalized system of so-called improvement of our common roads, a system inherited by us from England, but one so slipshod in its methods that of improvement there has been little, and in many cases roads have had to be abandoned as impassable by reason of their so-called improvement.

It is estimated that it costs the people of the United States every year \$300,000,000 more to transport the surplus products of the farm and forest to the shipping point than all the freight, passenger, mail and express over all the railroads of the United States. All this extra cost of transportation over dirt roads is a total loss, not one cent being returned to the people in taxes or as interest on invested capital. And yet this is only a small portion of the loss caused by the poor condition of our roads. The loss of surplus products which cannot be put on the market, the loss of wear and tear of vehicles, the loss of time, the dissatisfied condition of our agricultural classes on account of the isolation of their lives and the consequent falling off of production and the increased price of living, are all sources of loss of millions to our people.

The importance of good roads to the Southern States is shown by an investigation made by the Bureau of Statistics of the United States Department of Agriculture in 1906, from which it was learned that the average cost of hauling cotton from the farm to the nearest shipping point was 16 cents per 100 pounds, at which rate the total cost of hauling the cotton crop of 1905 from farms to shipping points was \$8,000,000. The average cost of carrying the cotton from local shipping points to Liverpool is 72 cents per 100 pounds, by which it will be seen that it costs the farmer nearly one-fourth as much to haul his cotton from his farm to the nearest shipping point as it does to get it into the great markets of the world. This cost could be reduced at least one-half by good roads. As it is with cotton, so it is with other products.

But there are other considerations even more important than the financial advantage which would follow the improvement of our public roads. The unrest and dissatisfaction of our agricultural classes is largely attributable to the condition of our roads. They are cut off from those social advantages which make life enjoyable and tend to mental progress. Life on the farm is unattractive and means mental and social isolation, and it is for this reason that the brightest brains of the rural communities are seeking opportunity elsewhere. All the lines of trade and industry are becoming congested, and the farms are becoming depleted and left to the thriftless and unambitious. This condition of affairs should be sufficient to arouse our apprehension, for upon that class of our people depends the happiness and prosperity of all the people. Food products are becoming higher every year because the production does not keep pace with the increase of population. It is important, therefore, that something should be done to revive the interest in agriculture, encourage a movement from the city to the country by making country life more attractive and profitable.

That good roads will go far toward making country life more attractive is shown by the thickly settled farming communities in those sections where good roads have been built. Here we find good schools, churches, social meetings and the exchange of ideas that make life agreeable and progressive. And here we also find more attractive homes, better improved farms and better methods of agriculture. The convenience of getting to market enables the farmer to diversify his crops and increase his income by the sale of products which would otherwise go to waste. The convenience of good roads makes these communities so attractive that the value of land is greatly increased. Where there are good roads distance is not measured by miles, but by time. The farmer

who is 10 miles from market on a good road is nearer than the farmer five miles on a bad road.

Government statistics show that 50 Southern cities every year import from the North and West \$23,000,000 worth of dairy products that could be produced in the South, but it is impossible to maintain creameries without good roads, for the milk to operate these creameries must be collected every day over a considerable territory.

One of the first questions asked by the Postoffice Department when application is made for rural delivery is as to the condition of the roads in that territory, and many communities are debarred from this great convenience by reason of bad roads. With good roads rural delivery could be greatly extended and made more efficient.

In the early days of railroad building the railroads followed population, but in these progressive days the railroads are the pioneers and population follows the railroads. The reason for this change is that quick and easy transportation to the markets is a necessity. So with public highways; good ones have become a necessity, and the section or community which wishes to attract an intelligent and progressive population must see that its public roads are in good shape. This is essentially an age when time means money, and good roads mean the saving of time.

It has been urged as an objection that the present agitation of the question of good roads originates with the owners of automobiles, and is exclusively for their benefit. Granting that this is true, the fact remains that good roads will benefit the farmer more than any other class, for he uses them most. The automobile has come to stay, and it will be but a few years when the farmers will use them, as being the cheapest means of transportation. With good roads there is no reason why they should not be used to haul products to market from the country as they are now used in the cities to convey goods from one point to another.

The roads in the Southern States are generally in a deplorable condition. We are still warning out the people to work from three to ten days on the roads under the direction of men who know little or nothing of modern road construction, and the result is that a few shovels of dirt are thrown upon the road, to become mud or to be washed away altogether by the next rain. It has been said of the average road supervisor that his highest ambition is to make water run up hill. In every other respect we have discarded ancient methods, introduced new ideas, machinery and skill, and by a combination of these and American brains and energy have eclipsed all other nations; but in the matter of roads we are so far behind Europe that whereas transportation on their roads costs 8 to 12 cents per ton per mile, in the United States the average is 25 cents.

In this enlightened age no one questions the great advantages which would follow a complete system of improved roads. The practical question is how to secure them. It has proven impossible to secure them under our present system. The sparsely settled local community is not able to construct roads unaided. A direct tax sufficient to do the work as it should be done would be too burdensome to be borne. As all the people of a State are equally interested in the benefits to be derived from a uniform system of good roads, it would seem that the State governments should undertake the work; but most of the Southern States are unable to do so, as their taxation limit has been reached, as well as their limit to borrow money by the issuance of bonds. It is argued by many that the Federal Government should aid the States in this work, inasmuch as the consumers of raw material and food products throughout the United States are equally interested in lowering the cost of transportation, for they in the end have to pay the tax. It is further contended that as the Federal Government aided the building of railroads by guaranteeing their bonds and granting them large bodies of land, and are constantly making large appropriations for harbors and rivers, all in the interest of better and cheaper transportation, it could as appropriately aid in making good roads for the same reason. Bills for this purpose have been introduced in Congress, but no action has been taken on them, and it is doubtful if there ever will be.

While a national interest has been aroused in the problem of securing good roads, it looks as if the problem must largely be solved locally, and in many instances it is being so solved. Many counties in the Southern States have for several years past been systematically at work on the roads within their borders, working on a general plan which ultimately would give good roads to every neighborhood. Among the counties so working in Georgia, as furnishing examples of what can be done locally, are Richmond, Fulton and Bibb. I place Richmond first because Judge Eve, Ordinary of that county, and by virtue of his office Commissioner of Highways, was the first in the State to carry out a general plan of road-making and demonstrate that good roads could be made out of local material, and that it was better to concentrate the work on one mile of good road than to scatter it over five miles of bad road. His first problem was a serious one—that of a long stretch of bottom land, where a heavy rain would make an ordinary road a mass of mud. He first thoroughly drained it by ditches that carried the water off, instead of retaining it to be absorbed by the dirt thrown up in the middle of the road. He was fortunate in discovering a bed of red gravel and rarely sensible in utilizing it by covering with it the top of the road to the depth of several inches. This gravel, when packed by a roller, gave a smooth hard surface that prevented the rainfall from penetrating to the soil beneath. This gravel, now known as "Augusta gravel," is being largely used by the small towns of Georgia in paving their streets. The work on these roads was done by convicts sentenced to the county chain-gang for misdemeanors. So successful was Judge Eve's work that other counties began to follow his example. But other counties were not so fortunate in finding gravel, and were forced to utilize some other material for a surface covering for their roads. In some counties broken stone was used, but in the lower counties of the cotton States there is no stone, and sand beds were the greatest difficulties to overcome. It was finally discovered that a coating of six inches of clay and that covered with two inches of sand, packed down by a heavy roller, made a good hard covering that was almost impervious to water. In some localities a rotten limestone called "chert," which when pulverized and packed by a roller made a covering almost like cement, was used. In some localities in Florida a red sandy clay is used as a surface dressing. I have ridden over roads with this covering that were nearly as smooth and hard as a brick pavement.

In some of the Southern States, notably in Florida, some of the towns have gone beyond their borders and improved the roads several miles into the country for the purpose of attracting trade. The effect was to arouse an interest among the farmers, as the few miles of good road demonstrated to them what could be done and how much more comfortable a good road was than those to which they had been accustomed.

The general interest in good roads in the Southern States is manifested by the laws enacted within the past three years:

Alabama authorizes County Commissioners to levy special taxes for road purposes. Arkansas authorizes the formation of road improvement districts which may issue 30-year bonds not to exceed 20 per cent. of the value of the taxable property.

Florida authorizes counties to issue bonds for road improvement.

Georgia distributes her felony convicts among the several counties for the express purpose of working on the roads. The State maintains supervision of them, but the counties clothe and feed them. In order to meet the expense and give efficiency to the work a number of counties have issued bonds, the money to be used in purchasing improved road machinery and the employment of competent engineers.

Kentucky will submit an amendment to the Constitution providing that the credit of the State may be given to the counties for public road purposes, and that any county may incur indebtedness not exceeding 5 per cent. of its taxable property, and that an additional tax not to exceed 20 cents on the \$100 shall be levied to pay interest and provide a sinking fund.

Maryland has created a State Roads Commission to construct and maintain a general system of State roads through all the counties of the State, the work to be completed within seven years. For this purpose \$5,000,000 is appropriated, the money to be raised by the issuance of 3½ per cent. bonds.

Mississippi has abolished the convict lease system and authorized employment of convicts on the public roads.

South Carolina has enacted local laws allowing a number of counties to levy special taxes for road improvement.

Tennessee has made an annual appropriation of \$500,000 with which to improve the most important roads in the various counties, and also local laws authorizing counties to issue bonds.

Virginia authorizes the sentencing of felony convicts to work on the roads. Makes an annual appropriation of \$250,000 to be used in aiding counties to improve their roads, the counties to bear half the expense, for which purpose they may issue 34-year bonds not to exceed 10 per cent. of taxable value.

From the above it will be seen that the problem of securing good roads may be and is being solved locally. The issuance of bonds by States and counties seems to be the most practical way of raising the necessary funds, as in no other way can a sufficient amount of money be secured to do the work in a sufficiently short time to be of any immediate benefit. A small annual tax will pay the interest and create a sinking fund for their payment. As future generations will enjoy the benefits, it is but fair that they should pay a proportionate share of the cost.

As illustrative of what can be and is being done locally in Georgia, I notice an item in the papers stating that a load of 10 bales of cotton was recently hauled by two mules three miles into Americus in 75 minutes, the 10 bales weighing 5032 pounds. A few years ago it took six mules a longer time to haul the same load. "They say we are building the roads for the automobilists; does that look like it?" remarked the chairman of the County Commissioners.

In constructing and maintaining good roads in the South the greatest obstacle to overcome is water. In a sandy soil it washes out deep gullies by the side of the road, depositing the wash in the bottoms and making sand beds that it is impossible to haul a good load through or travel fast with a light load. The greatest fault with our road builders is that they conduct the water along the road instead of off the road. On grade or level the chief object should be to take the water away from the road by side ditches. If water is allowed to stand in the ditches on the side of the road it is absorbed by the soil in the road, making it soft and muddy. No amount of dirt thrown up in the middle of the road will make a solid highway if the water is allowed to stand in the ditches. To prevent washing on a hillside the water should as far as possible be taken away from the side of the road and not be allowed to run down the road. There are few roads that may not be made fairly passable by simply taking the water off them.

It is well to remember that one mile of good road is worth ten miles of poor road. A mile of good road can be added to with benefit, but to add to a poor road is but to stretch out misery. By concentrating the work of a year in making a few miles of good road in time all can be made good, but eternity would fail to give a system of good roads under the present system of trying to stretch a little work over a large territory.

Under our old system a spirit of selfishness prevailed. Every man wanted the work put on the road over which he most traveled, without regard to the interest of his neighbors. In the new era now being inaugurated the interests of all will be taken into consideration. It is not a question as to what is best for the individual, but what is best for the community. If the movement for good roads shall accomplish nothing more than to unite our people in a common purpose, that purpose being for the good of all the people, it will have done a good work.

How Commercial Travelers May Do Effective Work

By W. T. DU BOSE, Editor Commercial Travelers' Department of the Nashville *Tennessean*.

[Written for the Manufacturers' Record.]

The South, favored as no other part of this country with superior climatic conditions and a soil suited for a great diversity of crops, is far behind other sections of the United States not only in the development of its resources, but a large part of the profits of the farms and other industries are lost by reason of the bad condition of the avenues over which these products must be conveyed to market. For the same reason the people are restricted in social intercourse, business and otherwise.

Bad Roads a Tax on Farm Products.

It is easy to see that a bad road is a tax on the products of the farms, mills and mines through which it passes. This is a tribute of such magnitude that no monarch would dare impose it upon a people and attempt to collect through the ordinary channels of revenue. To illustrate this point we will suppose that farmers A, B and C own land of equal productiveness. The expense of moving his crop to market, however, costs B, who lives on a bad road, 10 per cent. more than it does A, who has a good road over which to haul his products. Therefore, this difference of 10 per cent. represents an expense, or a tax it may be called, which B has to pay. Estimates have been made to show the extent of this tax, but when it comes to farmer C, living in a section with the roads often impassable, and who is thereby shut out from the market at perhaps times

when the prices are most favorable, there is no way to calculate what losses he must sustain.

Capital Shuns Bad Roads.

Land which can only be reached by inferior roads is depreciated by the further fact that capital shuns such localities. The most desirable citizens are not disposed to seek investments and settle amidst such discomforts. A struggling worn-out team with half a load, tugging through mud and over boulders, is not a sight calculated to inspire a man of enterprise to make a home in that neighborhood.

Lose Best Assets.

People born and reared in a section of this kind usually become used to the inconveniences and the loss sustained by this kind of taxation, but a son born in such a family, with a spirit of enterprise, seeing other localities so far in advance of his home, becomes dissatisfied and bids a fond adieu to his people and the bad roads forever, and thus that community, in losing its sterling young men, has been deprived of its most valuable asset.

Tax Augmented.

To obtain a correct view of the situation as it is, we must in this connection take into consideration the state of the case in other sections, and we will readily see if the spirit for good roads fails to bring results here the South will be at a still greater disadvantage. The agitation for improved highways has been going on for several years, while the South, with its characteristic conservatism, has been more deliberative in responding to the sentiment than sister States over the great divide. Hence the farmers living in the country where roads have been improved to a high standard can thereby still more reduce the cost of production and realize a profit, where we are producing at a loss.

The net profit on anything is the difference between the cost and the price at which it is sold, less the expense of handling it. The roads over which a farmer must haul his products, or use for any other purpose, are as important a part of his equipment as his wagons. Time and again we have seen the manufacturer with obsolete machinery vainly trying to compete with the up-to-date factory, supplied with all of the modern improvements, and sooner or later we see the man with the antiquated machinery go to the wall.

From this illustration it is clear that those sections which have substantially improved their highways have thereby reduced the cost of production, which means, of course, an increased profit, and they are therefore in a position to name prices on a close market, which shuts out the farmer without these facilities or renders his farm profitless.

The South Not Asleep.

However, a faithful review of the situation is full of encouragement for the people of the South. While the States of the North and West have been more aggressive, the sons of Dixie are wide-awake. Cheering news is constantly coming from many parts of the great Southland to the effect that the sentiment for good roads is taking a firm hold, and substantial results are being reported from organized effort.

While the South is conservative, yet when once aroused there is not to be found a people with more energy or who will more enthusiastically carry a fixed purpose to a successful issue. Still, this good-roads movement is in but an embryonic state, and the work done so far will go for naught unless heroic efforts mark its further progress. To cover the entire South with a network of good roads is a gigantic task, and to bring it about will require years of patient toil and earnest endeavor before the sentiment reaches the interior, where the roads are in the worst condition. These people must not only be brought to know that they are in a hole, but must realize the deplorable condition of that hole and be shown a practical way out of it.

To make the sentiment for good roads general and progressive the National Government has acted with wisdom in manifesting a deep interest and lending substantial aid. States and communities have become active, while leaders are coming to the front in many sections to carry forward the great movement. The press is rendering great assistance, while some newspapers are featuring the work. But this generation will not be here when the good roads come all over the country unless the progress of the movement is marked by fresh zeal and the most forceful influences are brought to bear.

More aggressive measures must be adopted, and it is for this purpose that the MANUFACTURERS' RECORD has thrown open its pages for a free discussion and the interchange of ideas. This leading commercial journal is offering valuable prizes for suggestions to find a way to accelerate the movement.

I have endeavored to show the present situation of this, the greatest evolution of the twentieth century, and will now recapitulate. We see the South far behind in the matter of good roads; we find that bad roads means a heavy tax on the farms adjacent thereto, and that this tax is increased when other sections distance us in the improvement of their highways; further, the avoidance of capital from such localities and the loss of the sterling young manhood from these farms. I have shown that the South is now awakened, and that when the Southern people are aroused they work with energy and enthusiasm; that the General Government, States and communities are actively engaged; the press is showing a progressive spirit, but even with all of this encouraging effort and the important agencies at work still more force must be brought into action if people now living are to see the happy consummation of results which will place the South in the lead among all the countries on the globe.

There is an agency of the greatest potency, which can be had for the asking, and when organized will give an impetus to the work, which will surpass any influence which could possibly be brought to bear.

Direct Personal Appeal.

The modern idea of doing things is by direct personal appeal, but it is not practical to send professional road builders to all parts of the country and keep them there until the work is done. Even if the men could be found, the expense of this service would nearly build the roads. But we have an army of well-drilled men, fully competent to take the matter in hand, who will press forward the work in every corner of the broad Southland—men directly interested, and the only expense will be that used in postage stamps.

To accelerate the good-roads movement, and keep it going and growing in magnitude, it is only necessary to get the commercial travelers behind it. This great army can do the work, and will do it if organized for the purpose, and here we have the

direct personal appeal. But someone asks, Why are the traveling men not now interested and pushing the movement? The answer is that they are doing so, but an army of soldiers on the field can accomplish little without a general at the head to shape the campaign and direct effort. Besides, the man with a rifle at his shoulder is inspired when he feels that a thousand other rifles are in the same position and aiming at the same object.

A Practical Scheme.

I will endeavor to show that the scheme of organizing and bringing into active service for good roads the great army of the road is entirely practical, and promises greater results than can be had by any other agency. First, however, it might be well to state that this suggestion of using the commercial travelers for such important work is not new. The great Lakes-to-the-Gulf enterprise and the National Rivers and Harbors Congress, which contemplate improvements of similar magnitude to those we are now discussing, have been soliciting the aid and influence of the traveling men to create a popular demand for these national movements. The promoters of these are among the greatest statesmen of the country, and have requested the different organizations among the commercial travelers to send delegates to the meetings of the different associations engaged in these vast schemes of improving the public waterways. Besides this, these promoters are using the publications of the traveling men to further enlist their support.

The Man With a Grip.

It is a remarkable fact that the traveling salesman, though he is the right arm of commerce—the sole producer of business—is not fully understood outside of the regular channels of business. In the popular mind the modern commercial traveler is confounded with the old-time "drummer," who has long since gone to his reward, whatever that might be.

It may be well here to explain the difference between this old "drummer" and the commercial traveler. Threescore years ago it occurred to some of the jobbers that it might further their interests to send men over the territory to extend the glad hand, and thus win trade for that firm. For this purpose men were selected who could tell a joke, and they were well provided with flasks of the juice which is supposed to drive dull care to the wind and show the world up in its brightest colors. This man was sent out to have a good time, and to do the same for others; in that respect he was a success. Later this agent was supplied with saddle bags and carried along a few special articles to show to the trade. From this crude system of "drumming" the "drummer" was evolved. Then it was the second evolution occurred. Shrewd business men observed that the "drummer" was educating his trade, and that competition was growing sharper. This condition called for a higher order and different class of men for the road, and now we have the commercial traveler, with full lines of samples, and who has become more than a salesman; he is regarded by his house as an associate member of the firm. The difference between the "drummer" and the commercial traveler is the difference between a stage coach and a Pullman.

Jobbers and manufacturers now scour the country to find suitable men to represent them in the territory, paying the most handsome salaries of any profession. Such men are hard to find, since each one must possess qualifications rarely found in one individual, to wit: integrity, brains, energy, tact, resourcefulness and everlasting stickability. It can readily be seen that men of this stamp are rare, and with business on the high plane it has reached of late years, that men lacking any one of these qualifications could never command the respect and confidence of the merchants so as to win trade.

Another word before I leave the character sketch of this modern evolution—the commercial traveler. Unfortunately, the public—outside of business channels—has failed to make a proper distinction, and hence the commercial traveler must not only bear the odium of the old-time "drummer" handed down by tradition, but he is usually classed in a lump with peddlers, agents or vendors of anything who travel to sell their wares to consumers. When reference is made here to the commercial traveler it means specifically the men who travel with samples, selling only to the retail trade, and making periodical visits throughout the territory.

Magnitude of This Army.

There are in the South, in round numbers, 150,000 commercial travelers. Of this number it may be estimated that 100,000 go to the interior, and therefore travel the country roads, good, bad and indifferent. Now we have this magnificent army of trained diplomats, masters of self, well versed in the delicate art of persuasion, saying the right word at the right time and the right place in the most forceful manner, at the same time possessing the respect and esteem of the trade. In fact more, since it is well known that the relations between the merchant and the salesman of whom he buys his goods are often of the warmest personal regard. No class of men can be found better fitted to deal with human nature in all of its phases than this man with his grip.

His Opportunities.

In proposing the commercial traveler as a factor to further good roads it is necessary to state what opportunities he may have to use the sterling qualifications and influence he possesses for such work. It is well known that in every community, especially in the country, the merchant is among the most influential men, and it is with this citizen that the salesman comes in direct contact.

It is the part of a traveling man's stock in trade to be posted on current events and be able to express an intelligent opinion. This information he can easily acquire, since he goes everywhere and knows everything. It is customary, especially in the South, for the salesman in visiting his trade, either before or after selling a bill, to spend more or less time in a social way. This affords the traveling man an opportunity to impart any desired information and to use his influence for any purpose he may wish. The merchant afterwards recalls the same over the counter to his own customers. The salesman has weight, since it is well known that he has no axe to grind, nor can he be working for graft. Especially would this be true in urging the importance of good roads.

Extended Influence.

But this by no means embraces all of the opportunities offered this commercial traveler to use his influence. The country store is the headquarters of the neighborhood. There the farmers gather to discuss crops, politics and all of the leading issues of the day. And to the uninformed, who regard the average country man as a chump, it will be stated that the reverse is true. These farmers read the papers, which are now brought to their doors by the free delivery system of the Government, and they have time

to think. They do think, and often express opinions which are a revelation to the city folks, who take it ready-made and handed out by the daily thrown over in their front yards every morning, without thinking it over.

The presence of the "drummer," as he is still often called, in the store is the signal for the crowd to gather about to hear the "latest." It is seldom that the salesman can secure the attention of the proprietor as soon as he enters the house. It requires from half an hour to a couple of days before he can get down to business. All of this time he must be right on the spot, ready to seize the first opportunity to get in his work. Thus while waiting he spends the time entertaining the crowd around, and usually a pleasing way to pass time.

But there are still many other opportunities open to the traveling salesman to use his influence in promoting any cherished object. At hotels, on trains, at the roadside where he has stopped for dinner, around livery concerns while waiting for his rig to be gotten ready, this traveling man is thrown with a multitude of people from every class, and in every crowd this salesman is a welcome addition.

Again, when he comes to his house he finds ready listeners among the members of his firm, especially when he has a subject to discuss which is causing serious loss to that firm—such, for instance, as delays in travel. It is the house which "pays the freight" when a salesman is losing valuable time crawling over a bad road or stuck up for half a day in a mud hole with a broken axle.

Best Posted of All.

Unquestionably, the automobile has been a large factor in molding the present sentiment for better roads, but the autoist has much the advantage of the commercial traveler. The former is usually out for pleasure, and may select his route, avoiding the rough places largely, but the unfortunate salesman must take the roads as they come—good, bad and indifferent. The only consideration with him is the route which will land him quickest at his destination.

Often this angel of commerce starts out in the morning over a smooth pike, making six or eight miles an hour, when he has to turn in a muddy lane and face great boulders at every turn, over which he must find a way to pass, while his speed has dropped to a snail's gait. Perhaps his team begins to balk, or he hears that familiar sound which accompanies the crash of a wheel; now he is fixed hard and fast until his driver can go to some good-hearted farmer and borrow a wheel to enable him to reach the next shop, and here the repairs are made "while he waits."

Of course, he sees (at least in his mind) his more fortunate competitor who has had no such mishaps "beat him to the tank" and is then selling the bill he would have gotten but for his delay. Talk about eloquence! That salesman can lay in the shade such orators as Cicero and Demosthenes. All he needs is a chance to talk.

From the foregoing it has been shown that we have found an agency, or factor, and one with the opportunities of direct personal appeal; men of brains, energy and resourcefulness, with the abilities to use these to the best advantage; a vast army, possessing a great influence and limitless opportunities for using the same; men directly interested in the improvement of the highways, and now comes the practical question, Can we harness this power of Niagara and utilize it to promote the cause of good roads in the South?

It is practical to bring into play the full force of this mighty power and use it as a factor for the betterment of Southern highways. We will find this great army ready, willing and anxious to co-operate and go to the very limit for good roads. To bring this about it is necessary to effect some sort of an organization among the commercial travelers so that the general effort may be directed intelligently into a common channel.

There is just one difficulty to overcome, and that arises from the constant change of the traveling men. This is not insurmountable, but will vanish with proper effort directed along right lines by leaders in this campaign for good roads.

The writer, having carried a sample case (along with ten or a dozen trunks) for a score of years, knows something of the habits and sentiments among his craft, and will offer a few suggestions concerning the best way to effect a working organization among the army of commercial travelers for good roads.

It is, of course, necessary that there should be a leadership. This guiding power must, first of all, be free from all political entanglements. It must be composed of strong men known for integrity and earnestness of purpose, then it must be directly interested in the welfare of the South.

All this and more can be found in the management of the MANUFACTURERS' RECORD, published in Baltimore, a well-known journal circulating all over this section and known as a strong agency, standing for every good measure which promises to promote Southern interests. If this journal consents to assume the leadership in the matter of organizing the traveling men into a working body, and proceeds with its characteristic ability and push, the work would be intelligently and speedily consummated. Nor would it be necessary for the writer to offer further suggestions.

How to Do It.

Of course, it is important to get in direct touch with the army of commercial travelers on the firing line. To accomplish this it is necessary to secure as large a list of names as possible, to be used in further correspondence. Such a list may be had in several ways. A card in the columns of the MANUFACTURERS' RECORD fully explaining the purpose and requesting names and addresses of all traveling salesmen interested in the work of good roads would unquestionably bring forth a large number of replies. A return postal card mailed to the names thus secured asking for the receiver to send in other names would result in an additional number of names.

From the books of the mercantile agencies the concerns with men on the road could be learned, and a circular-letter to these firms would receive a ready response, since these jobbers and manufacturers are directly interested with their salesmen in this important work, and would cheerfully furnish the names of their men.

There are a number of publications issued in the interest of commercial travelers, and these could be used to augment the list of names. A plain statement of the facts presented in the columns of such journals will reach a large number and receive attention. Among these publications may be noted the *Sample Case* of Columbus O., the organ of the United Commercial Travelers, with a membership of 55,000, all of whom receive this magazine. The *T. P. A. Magazine* of St. Louis is another, and reaches nearly 50,000, who constitute the membership of that important order. Besides these, there are other publications for the traveling men, such as *The Firing Line* of Nashville,

The Commercial Traveler of New Orleans, *The Traveling Man* of Chicago and others might be mentioned.

Operating the Plan.

With this list once secured the way would then be open for a regular correspondence, through which the individual members of this great army could be advised of the features of the campaign, sections where the most work should be put in, encouraging facts presented; doubtless competition between different localities for improving the roads might be encouraged; or, in short, the Great Army of the Road could be supplied with ammunition to be used in the battle for good roads.

It is possible to accomplish good results without such a list and these circular-letters, but this would unquestionably produce a stronger effect.

At some future date, when the organization had been formed and gotten under headway, it would be well to call for a meeting of the army at some central location, when, of course, the work could be better handled and the interest increased.

Therefore, in conclusion, I beg to submit that the best means "for encouraging the movement for improved highways in the South, * * * the most effective plan for giving the South a system of public highways suited to its needs," is to get the commercial travelers behind it.

Engineers Essential in Highway Construction.

By A. H. PLACE, C. E.

[Written for the Manufacturers' Record.]

The exhaustive discussion of a problem covering such a diversity of physical conditions as is found in the great empire of the "South" would be impossible in the restricted space which the MANUFACTURERS' RECORD has specified as the maximum limit for these articles. The social conditions obtaining are just as diverse, and as each special condition, physical and social, has a distinct bearing on the subject, the writer will endeavor to state briefly and comprehensively a few general plans for the betterment of the conditions surrounding the inception and prosecution of the movement for good and better roads in whatsoever State or community they may spring.

The advantages and necessities of easy communication between the point of production of any commodity and its market are self-evident, and at the very base of economics. This ought to make the problem of good roads one of the first, if not the first, to be taken up in the development of a new country after the railroad has made the world's markets accessible.

The factor having the most direct bearing on the condition of the highways in new countries is the density of population, which under the present conditions makes a good road practically unknown and despaired of in the rapidly developing parts of the South and Southwest.

To avoid the criminal waste of the public funds, meagre as they are, which are appropriated for the purpose of making, at least, better roads, the whole question should be placed where it belongs, i. e., in the hands of engineers, and the problem certainly is of importance and moment enough to be given the dignity of an engineering problem worthy of the best talent in the profession of civil engineering.

In the construction of a railroad no sane man would employ a farmer, a druggist or a physician, either to locate, build or maintain and operate it. Yet on every hand we see all manner of men with absolutely no qualification, save the luck attending a nomination and election or a "pull" with some one "higher up," making highways and streets and roads everywhere. In the writer's opinion, it will be a hard matter to eliminate politics from the question, but there should be some qualification for the work, and it should carry enough of wages or salary to make it worth the time and effort of much better men than are now usually found in the business.

The problem is very analogous to the problem of the location, construction and maintenance of railroads, and with modifications can be handled in much the same way. In the case in hand the State is the road company. The State highway engineer is, or ought to be, the chief engineer of the highways of the State, and he should have his assistant, division and resident engineers scattered throughout the State, exactly as the railroads have, and no road or highway should be projected until the resident engineer has gone over the line and made a location with due regard to grades and the selection of such lines as will insure the easiest construction of a permanent roadway and its easiest maintenance in the future.

It may be possible to use the county surveyors in a great many counties in the work of locating these lines, but in most cases, in sparsely settled regions particularly, the county surveyor is merely that; he knows nothing of construction.

In the construction of the more permanent highways there will be more necessity for the services of trained engineers in making, in the first place, a survey of the line and designing ample drainage ditches, culverts and bridges, and then making a selection of the best medium for the roadway. As a part of the selection of the medium a thorough test, both chemical and physical, should be made in the laboratories of the State, and the selection should be governed by this report where there are a variety of rocks from which to choose.

In a locality where there are only gravels, sand and clays it is possible that a mixture may be made and used more advantageously than gravel alone, and the community should get the best that can be had before a cent is spent on the work.

In the various States it is more than likely that there would be many individual differences in the manner of conducting the details of the organization and the work, but the same general plan could be carried out, and while the highway department deserves a separate place by itself, it would most logically come within the jurisdiction of the State Department of Agriculture until it is grown sufficiently to stand by itself.

In several Northern States the highway engineer is subordinate to the Agricultural Department, and great strides have been made within the last few years toward the construction of State highways, which traverse the States in many directions, the object being to have what will correspond to the trunk lines in railroads built under the State control.

It may be suggested that a course in highway construction be made a part of the curriculum of every State College of Agriculture, and that each farmer who goes out from these colleges have some practical knowledge of the best ways of making and repairing his own farm roads, as well as some theoretical information.

In the Agricultural Colleges and Experiment Stations, probably more than anywhere else, may be developed the economy and sense of the wide tire.

These latter paragraphs may seem to be at variance with the original premise, i. e., that the matter be made the subject for engineers alone. The writer thinks that some knowledge of roads and their care should be a part of the equipment of everyone as dependent upon them as are farmers, just as much as "sense enough to come in out of the rain" should belong to everyone desirous of health and not the exclusive legacy to physicians.

The point, in which the analogy between railroads and public roads cannot be logically followed, is in the period of permanent construction, although on some lines in the far West and Southwest the analogy is quite striking. In a very sparsely settled country a railroad often does only the lightest surfacing and omits the ballast altogether and constructs pile bridges and temporary culverts, etc., leaving all these to be done in a permanent fashion until such time as the road earns money enough to do the work or until the population tributary to them demands something better. So with highways. They are laid out and traveled some time before there is any effort to make them passable in bad weather, and at first the attempts at improvement are of the simplest character, but the community finally comes to a realization that there is something better needed and a tax is levied or bonds are issued and the work begins, too often with the most pathetic results, due entirely to ignorance, and not to malicious effort.

As an illustration: In a very active and growing community not more than a thousand miles from Galveston, where the soil is a very red sand and where there is very little rain from the first of December until the first of June, and where from the first of June until the first of December there are rains of the most startling violence, and where in the dry season the wind is most incessantly active, the streets have become almost impassable by day and absolutely dangerous at night. Something had to be done. The Councilman in charge of the streets is given power to make repairs. A road machine is gotten from hibernation and the work of improvement is begun. In some streets a gutter is plowed, on others the gutter has been washed away, no one knows where, and earth, the same red sand, is borrowed somewhere and brought in to make a new gutter and roadway.

As long as there is little traffic, no rain and no wind the streets look very pretty. However, a rainstorm or a high wind over night will change all this, just as they have been changing all the work that has been done during the last 20 years, and next summer will see the same condition obtaining as obtained this summer, and yet it goes on just so from year to year. And this is in a thriving town which advertises itself as progressive. Is it to be wondered that one often hears a pious citizen ejaculate from his heart, "O Lord, how long?"

Within a mile of the courthouse in this city there are unlimited supplies of gravel, and within 20 miles there is limestone enough already quarried from a railroad cut to pave 10 towns of this size and the railroad right there to bring it in and sell it at a nominal figure. Until the matter can be handled by engineers the only remedy lies with the press of the South and Southwest to begin a campaign of education, and the MANUFACTURERS' RECORD is starting this campaign in the right way by arousing a widespread feeling on the subject. The hope of finding one remedy that would cover the ills existing in each section is a very small one, but the writer would suggest that, to promote thought and disseminate some practical ideas that may bear fruit at once, the MANUFACTURERS' RECORD publish from time to time special articles on various methods of making good roads, written by men who are acknowledged masters of the science, in a simple manner and illustrated by sketches or drawings. These articles might first deal with the best soils for earth roads and the best methods of making them, then progress to gravel roads, dealing with gravel mixtures, then with macadam roads, and possibly a few articles on paving materials.

There is no doubt that a series of articles of the nature indicated would demand reprints in the form of monographs, whose circulation ought to be widespread throughout the entire South.

This is an alternative, for the engineering basis, on which we would like to see the question placed, but it seems the only feasible one for immediate results. In many quarters also it would have the advantage of being much cheaper.

The solution of the problem by a corps of engineers, maintained by the State, would, of course, necessitate the expenditure of large sums of money annually in salaries, traveling expenses, etc., but to show how much money could be saved to a State by improving all the roads it is necessary to go very lightly into statistics and quote figures from one State only. In Texas there are hauled to market over unimproved roads annually 8,000,000 tons an average distance of five miles. The average cost of hauling over improved roads throughout the United States is 25 cents per ton mile. The cost per ton mile over the unimproved roads is 43 cents here in Texas. The difference which Texas spent on 40,000,000 ton miles, at 18 cents, equals the total of \$7,200,000.

In these figures there is no reckoning taken of any hauling from the markets back to the farms and ranches, and it is not stated that the figures take into account the repairs to harness, wagons, injuries to and crippling of stock, etc., but it is more than likely that a great many of the minor accidents were not reported, even if the figures have taken these items into account. It is safe to assume, therefore, that the State of Texas spends in the neighborhood of \$10,000,000 every year from which there is not one cent returned.

Without going into figures, it does not take a great deal of imagination to see what might be done each year with only a part of the money which is now, in fact, thrown away.

While the figures for Texas show an astonishing aggregate of waste, it is only necessary to study the costs of hauling per ton mile over improved and unimproved roads and think of the 18 cents which is gone every time each farmer goes a mile toward market with a ton of cotton or grain or any other product of his farm.

It is quite likely that these figures are close enough to the conditions which will be met anywhere in the South to be taken as a basis for any computation which those so inclined may wish to make.

The question of the best means of raising funds for the prosecution of this great work will vary with conditions almost everywhere, and is not one for the decision of the engineers, from whose viewpoint the writer has to look at the question. There are many ways of doing this work if it is determined and agreed that a good road is an essential to prosperity.

As has been said, the manner of prosecuting the work will vary with local conditions, and just so will the cost of the same fluctuate. Where the soil is suitable for

making a roadway the cost per mile will not be prohibitive to the most sparsely settled districts.

Where gravel and limestone rock are accessible, the following figures may be of interest, being an average taken for much work done in Missouri, and for which I am indebted to Mr. Curtis Hill, State Highway Engineer of Missouri.

These figures do not include the cost of grading, culverts, drains, interest on plant or contractor's profit, which may be estimated at from 10 to 20 per cent., depending on local conditions:

Cost of Rock Road per Cubic Yard of Finished Roadway.—Crushed Rock.

Quarry rental.....	\$0 05
Quarrying.....	40
Crushing.....	24
Hauling, per mile.....	20
Shaping roadbed.....	10
Spreading material.....	10
Rolling.....	15
Sprinkling.....	05
Superintendence.....	05
Incidentals.....	05
Total.....	\$1 45

To the total of \$1.45 must be added from 15 to 20 cents for contractor's profit, which will bring the total cost to, say, \$1.70 per cubic yard. As the thickness of the surface will vary from four to ten inches, it is seen at once that a cubic yard of material will make from eight or nine down to three or three and one-half square yards of roadway, at costs ranging from 25 cents, approximately, per square yard of finished roadway up to about 60 cents per square yard.

If gravel is used instead of crushed rock the following charges are to be made instead of the 70 cents for quarrying and crushing the latter:

Forking.....	\$0 05
Screening.....	20
Loading.....	05
Total.....	\$0 28

In other words, the gravel is 42 cents cheaper per cubic yard than the crushed rock, or costs, including contractor's profit, about \$1.30 per cubic yard.

From the following table of quantities required per mile the approximate cost may be figured for any width of roadway. It must be borne in mind, however, that the figures in the table above are for one mile of haul, and any haul in excess or less than this may be allowed for:

Width of metaled roadway.	Total thickness in inches.				Total amount in cubic yards.			
	Loose.		Compact.		Per foot of road.		Per mile.	
	Center.	Sides.	Center.	Sides.	Loose.	Compact.	Loose.	Compact.
8 feet.....	10	10	8	8	0.247	0.19	1304	1000
9 feet.....	10	10	8	8	0.278	0.22	1468	1150
14 feet.....	10	7	8	5½	0.364	0.29	1922	1530
15 feet.....	10	7	8	5½	0.390	0.31	2060	1640
16 feet.....	10	7	8	5½	0.416	0.33	2197	1740
24 feet.....	10	7	8	5½	0.624	0.50	3275	2640
30 feet.....	10	7	8	5½	0.780	0.63	4018	3300

In many instances the rolling may be omitted, leaving the packing to be done by the traffic, but if possible the use of a roller is always recommended, and is most desirable.

A road should never be constructed without provision for its maintenance. Under ordinary traffic a macadam road will become worn to the extent of from 90 to 100 pounds of material per square yard of surface per year. By giving the roadway attention at least once a year the surface may be kept in good repair for from \$40 to \$50 per mile, sometimes less. If left for several years, a well-made road will require resurfacing. This should be done by spiking up or scarifying, after which it should be reshaped and rolled, adding new material where necessary. The total cost of this work will vary from about \$200 to \$300 per mile.

Possibly some emphasis on the benefits of wide ties will not be amiss while we are considering the maintenance of roads. The assistance they exert in the preservation of the road are worth their extra cost, while if farmers generally realized the ease with which they could haul larger loads with the same effort, their adoption would be universal.

The writer has believed for some time that convict labor can be used in the construction of public roads with less liability of conflict with organized labor than in any other useful work, and by so being employed a real benefit would be conferred on the State whose laws have been violated.

The advent of the automobile will doubtless be accompanied by demands for better roads if the country at large does not take steps toward the construction of better ones before the demands are made. The action of the tires of these machines on our best roads is such that they are not deemed good enough, and to meet the new demands, as we will have to, before long, the very highest skill only will be able to meet the requirements not only in design, but in the construction of our highways.

To meet the demands made for good and better roads, then, first of all the necessity for them must be driven home to every voter in every State. This may be accomplished by just such campaigns as the MANUFACTURERS' RECORD has inaugurated, and by the dissemination of literature bearing on the subject in the way that has been suggested and by generally educating the rural masses up to the point where they realize that their welfare is absolutely dependent on good roads.

This step is the first one leading toward the creation of a branch of the State Agricultural Department, whose exclusive business shall be the making of good roads, and the appropriation by the State Legislatures of sums of money for the prosecution of such work in such proportions as they can afford, but to have a well-defined plan laid out for them by the State engineer in charge of the work, and to have some such work done every year.

For the dissemination of all information on the question, the writer would suggest that the MANUFACTURERS' RECORD have a department devoted to this work and publish all the data obtainable on the costs of various road work, together with all the results of experiments made along the line of original investigation of road-building materials, and that reports be made from time to time of the amounts of various kinds of roads constructed in the different States.

Other periodicals would soon take up the work, and they will all help, but to the MANUFACTURERS' RECORD will belong the honor of having inaugurated the greatest movement for the betterment of conditions in the South that has been made in the last generation. You could depend on every engineer in the South for all the assistance which his training, practice and personal pride would gladly lend in such a movement.

The results will be far-reaching, as you already know. You have aroused the community at large to a realization of its needs; the spirit of investigation has been stirred

among engineers and scientific men, and the only logical result can be a broader and more liberal policy on the part of the various Legislatures toward any movement which will make for the betterment of conditions and the advancement of prosperity throughout the various Commonwealths of the South.

Sweetwater, Tex.

Yonahlossee Pike in the North Carolina Mountains

By FRED A. OLDS.

[Written for the Manufacturers' Record.]

Incomparably the finest dirt road in the high mountain region of the South is the Yonahlossee turnpike, in the counties of Watauga and Mitchell, North Carolina, which for most of its length is above the clouds, almost half of it lying along the upper flank of the vast stretch of Grandfather Mountain, and parts being only 1000 feet below the three peaks of the Grandfather, which rears itself so high that it can be seen more than 100 miles. In a recent letter to the MANUFACTURERS' RECORD the writer made a passing mention of this road, whose beauty equals its utility, and, having but recently walked its entire length, had exceptional opportunities for seeing it. It may be stated that this road was built about 20 years ago by the Linville Improvement Co., of which at that time Col. Kenneth R. Murchison of Wilmington and New York city was a member. Wilmington men now control this company, which has an immense stretch of territory in ownership, embracing Grandfather Mountain and many thousand acres besides, together with miles of splendid trout streams, with their own fish hatchery. Mr. Donald McKae is the president, and he and his brother Hugh are the trustees, Mr. C. L. Rowe being the secretary and also the agent for the trustees. The company has conducted its affairs quite along the line followed by Mr. George Vanderbilt near Asheville.

The writer can never forget the good hour when, after having left Blowing Rock very early on a crisp and delicious August morning, he and his three boy companions, who had already walked over 100 miles to get to Blowing Rock, swung along the road



DEVIL'S FOREFINGER ON YONAHLOSSEE PIKE.

which links that noted resort, which is 4100 feet above sea-level, with the eastern end of the Yonahlossee turnpike, and tramped the two miles to this end, these not being bad road at all, yet not at all comparable to the turnpike. The way lay alongside part of the 20,000-acre estate of the late Mr. Moses Cone, easily the most beautiful private estate next to that of Mr. George Vanderbilt's, his splendid mansion being in full view, together with a vast orchard of apple trees, 45,000 in number, with picturesque gateways and very attractive plantings of shrubbery, all native, there being 50 miles of road in the estate, besides no end of bridle-paths, all built by Mr. Cone, with substantial stone bridges, often of quaint design, nature and art being very finely blended there.

The heavy rain which had fallen for two days and nights was a test of any road, but it was found that the Yonahlossee was not damaged at all. We had walked in the course of our journey five miles over what is known as the State turnpike, which a few years ago State convicts built across the Blue Ridge between Wilkesboro and Jefferson, and had found it a most dismal failure; turned over now to the by no means tender care of the two counties through which it runs, and being a striking example of how not to keep a road. It was full of ruts, dreadfully muddy in spots, and in some places the people had simply thrown in rocks of every size and shape, which made even walking horrible, and so it came about that the five miles we tramped on this State road, which is entirely of clay, tired us more than the 21 miles of the Yonahlossee, though the latter is entirely a dirt road also. Yet it is a dirt road which has been well graded and drained, and as State Geologist Pratt found in making a trip over it in August during a heavy rain, in fact, the day before we saw it, the roadbed did not get at all soft and the horses could trot all the distance.

The road, as already stated, was built some 20 years ago, the builder being a well-informed Scotchman, Mr. Alexander MacRae, of the same great clan as the North Carolina MacRaes. The laborers were natives of that section. Their labor was cheap, but effective, and the road was built at an extremely small cost. Mr. Alexander MacRae put the figure at something like \$8000. It may be stated that the road is 21 miles

long; that its elevation above sea-level is generally from 4000 to 5000 feet, the lowest point being Coffey's Gap, 2500 feet, the highest being at Alexander MacRae's house, precisely 5000 feet. The average grade is 3 per cent., the highest being 5 per cent.

Now, then, to get at the idea of the canny Scot who built the road. It was to keep it on top of ridges whenever possible, and this has been wonderfully well carried out, the result being that from the road at place after place and mile after mile there are noble views of the low country, sometimes covering 100 miles, and most of the way the impression is that you are traveling through a level country. The road winds most gracefully to get on this topmost point, but when it is necessary for it to strike the edge of a slope below the highest peaks the treatment is very fine indeed. The water, pouring down in a series of cascades from the mountain, is never allowed to run over the roadbed, but is invariably carried under it, and effects have even in this particular been



GRANDFATHER MOUNTAIN FROM YONAHLOSSEE PIKE.

studied so as to add greatly to the general plan. State Geologist Pratt, the head of the North Carolina road system, says very frankly that no earth road in any mountain country can surpass this one, and that it remains after all these years one of the best examples we have of what can be done with a dirt road when it is well graded and drained.

Though, as stated, so much rain had fallen, we found that even at the lowest place, Coffey's Gap, a road-mender was getting everything straight in an hour's time, some sand having washed across the roadway. Never was there a highway requiring less attention and maintained at less cost than this one. Of this fact Mr. MacRae assured me. At the same time he watches the road, goes over it each week and telephones to his caretakers, who are always ready for action. Thus there is the preventive treat-



WILSON'S CREEK, SHOWING DOUBLE CULVERT.

ment. When the good hour comes that there is a railway at the eastern end of this road the tourist world will go over it by hundreds of thousands and will rave about it. There is plenty of stone nearly everywhere along the route, and yet not an inch of it is laid with macadam, but the whole distance from Blowing Rock to Linville City can be done by a horse in two or three hours without effort. Up to say 10 years ago Concord stages ran on this road, handling travel between Blowing Rock and Linville City, which is a model resort built by the Linville Improvement Co., with hotels, cottages and golf links and set-out shrubbery of the loveliest mountain varieties, making a wondrously beautiful picture always, no matter whether viewed from the top of the Grandfather Mountain or from a point near at hand on the road. Everything there in that great estate seems to be fitted in together and to be appropriate—the mountains, the road, with its stream crossings and all its grace; the flashing streams, including the Linville

River; the rhododendrons, which make the place a gigantic flower garden in the summer, and last, but not least, the village itself, in its emerald green setting, with its buildings harmonizing thoroughly with the general scheme.

There is only one criticism to be made upon the Yonahlossee road, this being that it is not wide enough. It is only 16 feet, while it is the opinion of the best experts that all the roads of this class, including the down State country roads, should be at least 30 feet wide from ditch to ditch. It is to be observed on this turnpike that not only the grade is good and the arching well done, but that the surfacing is cleverly looked after. At only one point in all the road was there found a defect; this was on a mountain flank at a rather steep place, where the road is built upon a shoulder, but is heavily shaded. There mud and water for a distance of perhaps 100 feet was observed, this being due to seepage from the hillside, much of which is a wild tangle of laurel, fern, galax and other close-set plants, but the mud was not deep nor troublesome.

The only way now to get to Blowing Rock is by dirt road from Lenoir, 22 miles, but this section is to be regraded and macadamized. This will develop Blowing Rock and throw the tourist world more than ever on the Yonahlossee. Access to the western end of the turnpike is from Pinola or Montezuma, two stations on the narrow-gauge East Tennessee & Western North Carolina Railway, which comes over from Johnson City by way of the Cranberry iron mines. The Yonahlossee ends in front of the Esseola Inn at Linville City. There is so much to fascinate the eye and the mind every bit of the way along the Yonahlossee that time flies and the end comes all too soon, even if one is walking. You feel almost as if you were on the roof of the world, and so artful is the construction that at Alexander MacRae's house you are only about 900 feet below the Linville peak of the Grandfather, a vast mass of solid stone, very rich in color and striking in outline, and Mr. MacRae once graded a road to the very foot of this crag, though now this is not used by vehicles, but only needs to be resurfaced to be available for them. It is very certain that no mountain road in the South affords any such views as this one, because it is so absolutely dominating. Very many readers of the MANUFACTURERS' RECORD have had the view from Lookout Mountain at Chattanooga, but those along this road are many times finer and far wider in their scope.

But what a shock we had a few minutes after we left the western end of the Yonah-



AT WEST END OF YONAHLOSSEE PIKE.

lossee at lovely Linville and struck the ordinary mountain road to Montezuma, two and a half miles distant. Mud where macadam should have been and jagged rocks which seemed to beg to be used where they were needed. At one point where there were 200 yards of bog, and where the road was not over 10 feet wide, a young countryman was cutting down bushes beside the roadway and throwing them in it. When the writer asked him why stone was not used in that place he said there wasn't any and lazily went on chopping down the bushes. There was some corduroy in the roadway. Before we had gone 100 yards from him there was a world of stone; the road was cursed with it; jagged, sticking up everywhere, and making heavy pulling for the poor horses. It was all untrifling personified.

The development of the Yonahlossee turnpike takes on a new phase because of the completion last month of a particularly well-graded and planned turnpike from Edgemont to a point very near Alexander MacRae's. This will put the Yonahlossee in touch with a little railroad from Lenoir, which is virtually an extension of a road a number of years in operation between that place and Hickory. Indeed, it seems to be quite on the cards that the railway from Lenoir to Edgemont will be continued to Pinola, which is now railhead of the East Tennessee & Western North Carolina Railway, already referred to. This mountain world along the Yonahlossee is so striking that it grows upon the mind. Everything is on a large scale, and the studies of climate and its effect upon vegetation, this being virtually the effect of altitude, have no end of interest. From the road itself these studies can be made. Changes are very sharp some times, and where in a sheltered place there are trees common to the down-country, one only has to turn around to see the balsam and other high mountain growth, for the road is almost a mile above the sea. All the turnpike is far above the 2000-foot contour line, so that the Yonahlossee traverses what will be now another State forest, just as does Mr. Vanderbilt's very fine road from Asheville to his lodge on Mt. Pisgah, the dominating point in the almost illimitably vast Pisgah forest.

The Yonahlossee, then, is at once an aspiration and inspiration to the mountain folk of the South; a call to do better things in road-making, and an example of how these are best done. The road has struck a high note, and when it is macadamized, and this will be done in the near future, if need be, it will be like a bit of ribbon laid down upon so slight a slope that the eye cannot discover any gradient. From the top of the Grandfather striking views of the road itself are had, and in quite a wide area its graceful

curves lie before the eye, showing red between the trees. If in the remainder of the high mountain region there were only such roads as this there would be 10 dwellers and 10 visitors where now there is but one. No man ever loved any creation of his more than stout old Alexander MacRae does the Yonahlossee, and at his home, the dominating point on all this line of beauty, where in winter the temperature falls to 20 degrees below zero, and where as he walks the floor and plays the bagpipe for his visitors he thinks of old Scotland, yet he cannot but admit that he loves North Carolina and the Yonahlossee more.

Raleigh, N. C.

Party Politics Not Conducive to Good Roads.

By D. F. JOHNSON, Secretary Brownwood Commercial Club, Brownwood, Tex.

[Written for the Manufacturers' Record.]

The last session of the Texas Legislature passed a law at the instigation of the various commercial bodies throughout the State authorizing the creation of road districts separate and distinct from the County Commissions' precinct when so desired, and made it mandatory upon the Commissioners' Court to create such district and call an election to vote upon the issuance of bonds for road improvements. I believe this to be the fairest and most equitable manner of distributing the cost of road building. It places the burden of the cost upon those most able to pay it, at the same time affording the privilege of use to those least able to contribute toward building permanent roads, but enabling the farmers to get the products of the farm to the market with less expense, less labor and in better condition.

Along the old National Road built through several of the older States the country settled and developed more rapidly than in other sections, its people were further advanced, they came in contact with people from all sections of the country, learned their ways, their manners, their thoughts, their modes of living, their systems of education, their plans of development, their ideas on farming, town building, establishment of factories, and for many years farm land along the old National Road was worth double the amount, its people were further advanced by coming in contact, learning the ways of others, and, adopting the plans best suited to conditions as they were, it enabled them to farm more intelligently, reap greater and more abundant harvests, and the good roads enabled them to get more ready markets and have their products in more marketable condition. So it proved in days gone by, so it is proving today. Beautiful homes, large and well-kept barns, fine stock, poultry yards and a herd of Jerseys will be found along good roads, as compared with the small, barren house, ramshackle stable, a few old, poor horses, a brindle cow or two and an abundance of cur dogs at the farmhouses situated along the rough, muddy or almost impassable country roads.

Today one of the leading pastimes and necessities of the farmer is dairy farming. The farmer situated on the good road has a nice herd of sleek Jersey cows, milks them twice a day, drives over a smooth road to a nearby creamery, markets his cream and drives home in the cool of the morning.

The farmer not on the good road, owing to his inability to get to the markets, keeps what little cream he has until it would make "limburger" blush with shame, then has the good farm wife make it up into butter that ought to be put up in small, round boxes and labeled "axle grease," takes it to town and gets about half of what the other farmer gets, complains of the tariff on wood pulp, cusses the Government, and goes home to do the same thing over. If he undertakes to get his cream to market over the rough roads, it will all be churned before arrival; if marketing eggs, they will be broken, and he must again resort to tariff talk, cussing the Government and fighting with his neighbors.

There is no greater incentive to happiness and pleasure than traveling over a good road. The pleasure-seeker, the prospector and the outing party will all travel several miles out of their natural course to get the benefit of the good roads.

"Good roads" is the foremost educator of easy and more practical farming. It enables the farmer to come in contact with those who have studied it from a scientific standpoint, who have spent money experimenting, and enables him to get the benefit of money spent by others in experimenting.

It enables him to come in contact with people of knowledge along practical lines, and relieves him of the prejudice against his town friends, whose prosperity and whose success is dependent on that of the farmer; it brings the rural and the urban population in closer proximity, and enables them to understand and work for each other's betterment.

In addition to this, he soon learns that the "town people" are paying their share for the maintenance of the good roads, and he is getting the benefit in traveling over them.

Good roads, however, are working a serious detriment to the "te'd bit" politician, who is no longer able to align the town and country people against each other, while he by his shrewdness reaps the benefit of some lucrative office. His commission will soon be out of date, and he will no longer be required to work overtime telling the country people that it is a "town scheme" to vote me taxes on the farmer, and telling the town people that the farmers alone are benefited, and if they will only elect him to office he will relieve the taxes and evolve a scheme of getting good roads at the Government's expense.

Good roads are beneficial, especially to the "Southern" merchant, whose success must largely be based upon the success of the farmer tributary to his town. It enables the farmer to increase his acreage, lose less time marketing his products, give better attention to his crops, and naturally increases the output of the farm, and places him with more ready money with which to clothe his family and educate his children. All of this money is spent in channels that are beneficial to the merchant and those depending upon his success.

In the South the merchant is and of right ought to be constitutionally opposed to mail-order houses. If the rural population are situated of easy access to the town, good roads to travel over, a ready market for his products, his money, instead of being sent away to the mail-order houses who don't care a whit whether the taxes are 90 cents on the dollar or a mill on the million, will be spent at home with the home merchants and ultimately back to the producer.

In the road district where the writer lives there is about 85 miles of country roads and in town some three or four miles of main or country roads leading to the

business portion of town, and the people living inside the corporate limits of the town pay from 60 to 80 per cent. of the taxes, and notwithstanding this condition an agreement was reached that of the \$100,000 road bond issue only the four miles in town was to be improved at an approximate cost of not over \$1500 per mile, and the balance of the money was to be spent outside the city limits on the country roads, and since this bond issue, and even before a cent was spent on the roads, inquiries have been received from parties wishing to put in a creamery, from still others wanting to establish a sorghum plant, a peanut factory, an additional cottonseed-oil mill and a cotton gin. In every case reference is made to our good-roads prospect, and the statement made that they have been attracted to our town by the notice of the road-bond issue, which they all state means closer and more conservative farming and generally improved conditions.

I believe bonding is the simplest and best way of building good roads. It more equally distributes the burden over a period of years that will necessitate those deriving the most benefit from the roads paying their just proportion of the taxes, and relieves the present of the burdens from which the future generations will receive the benefit.

I am told in Italy there are roads in splendid condition built over 2000 years ago. If the burden of the cost of these roads could have been distributed over a period of 2000 years, how insignificantly small would have been the cost to each generation? However, as this is impossible, the next best step is to bond for just as long a period as possible and equalize the cost among the beneficiaries.

In framing a law governing road-building, and especially under bond issues, the law should be so framed as to require a competent engineer to survey the various roads, figure the estimates of cost, where the greatest work was needed, where it could best be economized on, where drainage was needed, what kind of drainage was needed, what kind of openings necessary to take care of the water, what kind of bridges and culverts would be required, where best situated, and after this is done employ a practical road builder who would know how to follow the blueprints of the engineer and build with a view to permanency.

In selecting a road superintendent special care should be taken to get a man who will not waste the money and who can get a day's work for a day's pay, and who is neither a receptive or prospective candidate for some office that will require favoritism and furnishing an easy job to voters.

The present system of road-building and road-working in most States is a political farce; political, in that a politician is placed at the head of work that requires practical experience and theoretical knowledge; farcical, in that the men who are supposed to work the roads are political allies of the boss and put in about two hours actual work on the road for a day and spend the balance of the day in planning the next campaign; farcical, in that the results are temporary, and usually washes away with the first local rain; farcical, in that the drainage is more often on the wrong side of the road than on the right; farcical, in that soft dirt placed in a "wash" is money waster; farcical, in that in the same county where as many as 25 road supervisors undertake to build roads no two work alike, and seldom as many as two accomplish any permanent results.

In the county in which I live the cost of road work has been from \$10,000 to \$20,000 per year for a period of about 10 years, with a perceptible increase each year of the amount spent on the roads and without any perceptible improvement of the roads or permanent work.

Twenty thousand dollars is the interest on \$400,000 at 5 per cent. How much better, how much more businesslike it would be to bond the county for the \$400,000 and with it build permanent roads? In a few years it will all have been paid, and the cost of maintaining the permanent roads less than a fifth of the original cost. If this plan is not adopted the \$20,000 yearly expenditure will soon have doubled to \$40,000, and in another decade this doubled to \$80,000, and still no better or permanent roads. So that this is an economical proposition from a taxable standpoint.

In further considering the benefits of good roads sight should not be lost of the repair bill of vehicles driven over rough and almost impassable roads. Taking an average farmer's assessable property at \$3000, and the rate 15 cents per \$100 for good roads, and it will cost him \$4.50 taxes, and there is seldom a year that he does not pay twice this amount for repairs on vehicles damaged and broken while driving and hauling to market over the rough roads, and yet how often do we hear the cry of "increased taxes." A little practical common sense is best in such cases.

There is hardly a farmer who in driving to the further end of his farm, if he had a deep ditch to cross or a rough place to pass over, but would fill or bridge the ditch and clean the rocks from the rough spot to prevent breaking his farm tools. Yet in many cases this same man will almost daily drive over a similar place in a public road and cry against a small tax that would make the necessary improvement. This is another place for practical business judgment to be used.

In many places the railroads pay a large per cent. of the taxes, and yet in conversation with the general manager of one of the largest systems in the United States he told me he wished every county through which their road operated would vote a bond issue for "good roads," as it meant increased tonnage for the road, increased development, increased emigration, increased land values, closer farming and intelligent people with whom they would have to deal, people with reasoning power who would not be guided by the prejudices of ignorance nor influenced by the self-styled statesmen, more openly regarded as a "tin-horn politician."

A practical farmer living near Brownwood recently stated to me that his taxes would be increased \$18 by the road-bond issue at 15 cents on the \$100, but, said he, "laying aside the time saved, the damage to vehicles, and all those. I would cheerfully pay that \$18 every year for the comfort and pleasure of traveling over good roads, and actually believe I will live longer, enjoy better health and meet with better people by reason of good roads, and besides if a misfortune befalls myself or a member of my family, I will have the consolation of knowing I can get a doctor within a very short time." He had taken all of these into consideration, and was cheerfully prepared to pay his \$18 per year.

With the advent of good roads the rural resident finds the church but a short drive; he is enabled to send his children to better schools and to bring them up with a better moral tone, a better social training, and trained to deal with the world with whom they will have to battle through life. In some six States where the writer has lived and some 10 or 15 other States in which I have visited I have never seen a single instance of a family brought up in ignorance who lived on a good road. It has been an invariable rule that the families of those living on good roads are intelligent, well advanced

in their schooling; in fact, residence on a nice macadamized road seems to inspire them with a certain pride that makes them want to keep abreast of the times. Almost every reader, however, can point to cases almost innumerable, some of them near home, of ignorance, shiftlessness, indolence and filth among residents on the rough and untraveled roads. So it is beyond doubt that good roads are conducive to increased prosperity, diversified farming, dairy raising, increased factories. They are also an educator and a disseminator of education, and facilitate and inspire the youth to improve over the past. They are conducive to health and comfort. They are beneficial to the rural and urban residents. They work an injury to the large mail-order houses and generally improve conditions locally and inspire confidence; by coming in closer contact they break the line of ill-feeling between town and country, and are beneficial morally and religiously. They are a necessity, and the State and the county of the State that builds most will meet with the most rapid and the most successful development, get the best class of citizenship, have the best schools, colleges and churches, and I hope to see the day when in our own great State of Texas we will have great immense macadamized roads from one side to the other.

Part to Be Played by Public Schools for Good Roads.

By THOMAS J. MIDDLETON, Editor Ellis County Mirror, Waxahachie, Tex.

[Written for the Manufacturers' Record.]

The MANUFACTURERS' RECORD is entitled to much for the liberal inducement it is offering to a more general and serious consideration of the road question, and while the discussion is applied directly to the South, it has the added advantage that whatever good comes of it, and it can but result in good, will benefit the country at large.

Someone has suggested that if we would bring our best, we must either do something worth writing or write something worth reading, and paraphrasing the thought to the subject in hand, we who would best serve our section, and, in so doing, serve the larger field, must either do something ourselves for the roads or give something of our thought that will encourage others to do it.

Considering the importance of good roads from a money point of view, we have had "line upon line" for our encouragement. In fact, we have been shown reliably that so far from a road-bond tax being a burden upon the country, it generally proves an actual speculation in enhancing property values, the Government road statistics naming 50 to 500 per cent., and this always aiding materially to pay off some of the bonds before maturity.

If this be true, then it would seem that there is no further objection to the improved road, but wait. Someone says it costs far more to maintain the good road, even after the cost of building, than the other. This comparative cost of maintenance is always exaggerated against the good road, and this is easily understood. It is because of the next-to-nothing that we ever do for the primitive road. It may be safely depended on that the good road is as easily maintained as the other when we give the latter the work and attention to which it is entitled. Then the saving of wear to wagon, team and driver, with the time element counted, will all help very greatly to decrease the general expense account of the improved road.

Having laid down these propositions, which will be accepted as true to the material side of the question, the feature always of most interest, I prefer to say more as to the educational, moral and social advantages to be had from good roads, and these advantages will accrue in proportion as the home is far removed from railroads and such other helps as are found in all centers of activity. In fact, I prefer that what I may suggest in this paper as to the importance of good roads to the South may have its first and best application and benefit to those communities furthest removed from cities and towns, realizing that the others will always have better chance for attention.

In the gap between barbarism and civilization roads have ever been counted among the most important influences, and every history of the growth and progress of a people without mention of their roads must be rejected as imperfect. So that in his great work, "History of Civilization in England," we find that Thomas Henry Buckle, in telling of the early growth and improvement in Scotland, says: "The interests of civilization, that is, the interests of knowledge, of liberty, and of wealth, gradually assumed the upper hand and reduced men like the Highlanders to utter insignificance. Roads were cut through their country, and for the first time travelers from the South began to mingle with them in their hitherto inaccessible wilds." Then Pennant, traveling through Scotland after the road influence had begun to do its work, says: "Their public works were at first very disagreeable to the chieftains, and lessened their influence greatly, for by admitting strangers among them their clans were taught that the Lairds were not the first of men." Showing still the influence of the new idea, Sinclair wrote a little later: "Till of late the people of Kintoll as well as the other Highlands had a strong aversion to roads. The more inaccessible the more secure, was their maxim."

If now, after these historic references, our people find themselves asking whether by these standards we are civilized or barbarian, I think it fair that they agree to a compromise and admit that so far as many of our roads are a test, we belong to the half-civilized.

Seriously, we must admit, however embarrassing to our general pride, that our achievement in roads is far behind what it should be, resulting in constant drawbacks and annoyances, and sometimes deep humiliation, as when a community in Texas was compelled, only a few winters back, to bury one of its children by placing the coffin and corpse in care of a strong man on horseback, leaving the stricken family and their friends to trudge their way in mud to the grave, and yet Texas is conceded to be one of the richest of States, and not behind in general progress.

One of the serious drawbacks to country life today is the tendency of the farmer to leave his home in care of others while he lives in town. Every time one such citizen moves away his going makes it that much more difficult to maintain the several enterprises of the community, thereby encouraging others to go. So that whatever tends to make the farmer satisfied to stay on his farm should be, and will be, hailed as a blessing; and among the inducements nothing will prove so effective as a good road connecting him with the store, the school and the church. Men in the black lands of Texas have been heard to say that they were tired of tramping through mud, and that they did not intend to do it further, thus either selling valuable land or leaving it in care of tenants.

Good roads, then, will not only hold families to their homes, thereby helping to pre-

serve the general interests of the rural section, but they will help to bring all the families of a community in closer relation with each other, as well as with all the various influences and institutions that go to make up country life.

A great statesman and thoughtful publicist has said: "The road and the schoolmaster are the two most important agents in advancing civilization," and I shall treat them here as closely allied, if not coequal in general importance, inquiring at the same time why one has so far lagged behind, and why the public still gives it such grudging support long after it has become reconciled to constant and permanent taxation for the other.

We claim to be the most progressive nation on earth, and we "have our claims allowed," in the main, by other peoples, and yet when we come for the first time to compare our advancement along all other necessary lines with our general condition as to roads it must stagger us, and provoke our curiosity, if not our more earnest inquiry, to solve the puzzle of such contradictory conditions and determine the true cause of our backwardness as a first step toward its correction and cure.

Road-building reached its high point in the days of the Roman Empire. Two centuries after the building of the Appian Way Caesar gave the world his methods of building roads and bridges, and it is affirmed that the greatest bridge builders of succeeding centuries have found their most valuable ideas in the bridges they have built in this country and Europe from his plan of bridging the Rhine, and that McAdam himself got his first moving impulses from the books of Caesar, where he told of his methods of constructing roads in the wilderness, and through the morasses of the barbarian countries he conquered.

Much was lost to science and art in the downfall of the empire, and in it all roads seemed to be the last to be recovered by the nations as they were struggling toward the light.

Our ancestors severed themselves from the mother country before there was any progress there in road-making of the better kind, and it has been given us to grow into a nation without any model or example. We did something in roads in our earlier history. We had begun to devise large expenditures for improved highways, as in the National Road, which the Government set out to build to the Mississippi. After this came the era of railroad development, with its increasing facilities, which, added to that of the steamboat, helped to put the road question in the background, whence we have been slow to bring it into light.

Waking now to our condition, admitting its general backwardness, let us look at some hindrances that disturb and retard us: We are too often reminded of the roads of past and dead nations, that could only have been constructed under a rule of tyranny, without getting the practical good therefrom to which we are entitled. Built, as they were, without any effort, seemingly, at saving, they represent a great waste of human energy, and in their massive thickness we find much that might have been saved. It is estimated that these roads would have cost from \$30,000 to \$100,000 a mile as we count labor. Let us save where they wasted, and when we would be discouraged by the cost of these roads, let us come to the more reasonable estimates of our own times.

As a rule, we no sooner begin to advocate improvement of our roads than we begin to talk about "pike roads," and as a logical result we often stop right where we begin, overwhelmed with the difficulty as presented. Quit talking so much, then, of rock roads and their cost, even before we have improved our dirt roads as we might, and which improvement will prepare us for the better road later.

It is well that we have our "Model Road," particularly that the engineers are furnished us without cost to build it, that we may constantly make progress toward it. Carl Schurz has well said: "Ideals are like the stars. You will not succeed in touching them with your hands. But like the seafaring man on the desert of waters, you choose them as your guides, and following them you reach your destiny."

"Capital Highways," "Ocean-to-Ocean Boulevards" and projects of that sort, in which some who can afford it are indulging, have little in them to develop a substantial home interest in good roads, especially in counties off their line, and hence are not entitled to the time, interest and attention of the average farmer or other citizen who wants to develop a home interest for better roads.

What, then, is the least that the people should be content with as to roads, saying that the community is just fairly waking to the proposition that something must be done—a condition we may assume, and without offense, that exists in the vast majority of rural districts?

Whenever there comes a genuine purpose to do something in some way for better roads there are always found those who favor direct taxes to bonds, and even though they may contend for this method in good faith, it is impractical because the general laws of taxation protect the people against it as excessive, and as we have outgrown the method of "passing the hat" for such enterprises, we come logically and inevitably to the bond plan as the only one with which to accomplish substantial and lasting good for the roads, and wherever I speak in this paper of taxation for roads I refer to the bond plan of taxation.

The bond implies a low rate of interest taken on long time by all the community, and what more contradictory spectacle can we have than is furnished in that of an individual paying 8 or 10 per cent, for his home or other investment, and yet objecting to the community, acting altogether, in its methods of getting a very much lower rate for the things which it must have, and, of course, must pay for in some way.

Assuming that the roads are under county management, as I think they should always be, having obtained your bonds, sell sparingly at first until you gain some of the advantages of experience that come in many public enterprises, and in none more than in road-building. Engage an engineer. Do nothing by guess in this new role upon which you are entering. Have your engineer lay out a complete map of your road territory, whether a county or only a subdivision, showing where a culvert is needed (the cement crossings are now doing best service everywhere except in the larger bridges), where the drains are to lead, and the under-drainage as well; where some roads are to be changed, whether the change be to shorten distance, avoid a hill or from any cause that your engineer may think justifies a recommendation to the county board. Let him note the places needed fixing first, where hill may be lessened or a fill made higher. This all with a mileboard of clear design pointing the way and distance. This is the chart that shows your first needs, and hanging in the engineer's office, is a constant guide in the work.

It is an incalculable advantage to the future that these elementary steps are a necessity now, and if you are ready for the better roads, this that you have done is

that much on the way and nothing has to be changed. You have taken the first degree, and you never could have jumped over this to the second, anyhow.

Let it be said as a warning to such communities as aspire to rock roads before they are actually ready for them, or are expecting to get them the cheap way, that the dirt road prepared on above plan, and especially with the very bad places properly cared for, will prove more satisfactory in the end than the rock road built without the utmost care and scientific skill and such as the average county road man rarely furnishes.

In some communities and counties there is already a sufficient road interest to make this first substantial start. What can be done, then, to maintain it, even against errors that creep in, and what done to the development of a higher and better general road spirit? It is around the answer to this question that most interest gathers to rural communities, and in the proper consideration of it will most be accomplished for permanent good.

Keeping "the road and the schoolmaster" together, as quoted in the preceding, and in constant co-operation, while we are educating the taxpayers to the value and the necessity of better roads, we must be training the children at school also on the same subject, and this can only be done by a teacher who not only has his heart in the work, but who has given some thought and investigation to the matter. This program presupposes a State roads bureau, transmitting its work and influence to the counties and also to the normal schools, where some general principles of road engineering are to be taught and made a part of the school system.

When "the road and the schoolmaster" are thus closely identified, so that the teacher may infuse something of his spirit into the minds of his pupils, that they, in turn, may carry home the vital question, we may reasonably look for a more general and better road interest in the community. It is no mere fancy that a road interest may be generated in a school community. It can be done, not only by lecture and lesson, for the boys will take it even by absorption, but in other practical ways. Let the teacher, for instance, have the boys of his school to measure the road distance home and erect mileboards, and let them learn something of the main general principles of road drainage, etc. Let them be encouraged to hunt for gravel and study something of the character and extent of such gravel in their community, and let the county superintendent be expected to say something on the road question in his usual talk to the school when he comes on his rounds, and then in this sort of community you will find young men not only ready to support the road measures instituted by their fathers, but to carry the work further forward.

It will thus be seen that the best permanent road interest can be maintained by interesting the bread-winner and voter in the advancement of his boys and girls, and only the other day a farmer said to the writer: "If you want a genuine good-roads man, one who is willing to be taxed for them, take a farmer whose children lose day after day, and sometimes in the winter whole weeks, because they cannot get to the schoolhouse." When he sees his children losing precious time from their classes he has an object-lesson that does its work for good roads.

Having considered the value of good roads, especially their moral and general educational value, a feature too often neglected, and having considered road systems and the ways of securing the support of communities, we come to the question of road authority. Where shall the power to do and undo be placed?

Among the various suggestions for good roads that of national aid has come in for consideration. Some have contended that the ideal road system is that which is managed and maintained by the nation, the State and the county acting jointly, and some plausible arguments have been offered for national aid. The constitutional authority "to establish postoffices and post-roads" has been cited, and our road literature has told us again of the old National Road which our Government set out in its early history to build westward from Baltimore, appropriating \$7,000,000 therefor. Yes, we have been reminded of this great highway, over which as many as 20 gaily painted four-horse coaches would pass each day, as also the 10-ton freight wagons, with wheels 10 feet high and drawn by 12 horses.

Still, it does not seem best to wait for, or even ask for, national aid in this cause, except in so far as the Good-Roads Bureau at Washington is encouraging the cause by its literature, laboratory work and the model roads that it sends out engineers for such communities as furnish material and ask the department to build. In this, though, it can do much substantial work.

What, then, is the best course for our Southern States to pursue toward better roads in the matter of authority?

A bureau of roads should be a part of every State Government, and it should not be tied on to some other department, but a department within itself, and over it should be a competent engineer, with appropriations to maintain it in effective work. Whether he should be elected as other State officers or appointed with strict reference to professional and scientific attainments would be for each State to determine for itself, but in any event the importance of the post is not easily overestimated, and he should be counted equal in importance with the State Superintendent of Schools. Again, the details of authority from this bureau will be better left to each State to determine for itself, since it may be seen without argument that orders of the bureau could be better executed in Delaware or Maryland than in Texas on account of its size.

Then in every State school-road engineering should be taught, as already suggested, and the normal schools should at least have some lectures on road building, thus making it easier to carry the work to the counties, where some road knowledge, made thus quicker of attainment, should be required of every school superintendent.

This is such a system as each State should have, and must have, before it can do its best in this great cause; but, of course, counties and districts cannot in the meantime wait for the perfection of such system, but must go ahead with what they have, looking all the time to the improvement of their road laws, as well as the road itself.

As a direct aid from the State, it has been often suggested that the long-term convicts be worked on the county roads, and, again, that revenues coming to the State from railroads be turned over to the counties for their roads. The States can render substantial aid to the counties in many sections by aiding them to secure the best freight rates, and it should be spoken to the credit of the railroads that they have generally shown themselves ready to co-operate with the public for better roads,

knowing, as they do, that they have a common interest with the people themselves in the same.

After these helps, as in national aid, I do not think it good to ask for anything further, and, in fact, the State that will furnish appropriations for the educational program outlined above has not only done its part in road building, but given its people the best service possible, since education is the one thing the people most need in this great cause, and having within themselves the resources when they are made to realize it.

The main road authority vested in the county management, an important question arises as to whether the county is to be taxed as a whole or the districts taxed separately. Where there is sufficient road interest to carry the tax in the county as a unit this is the better way, as securing uniformity, but when this cannot be done, and this will prove to be the condition in most counties, it will be better to go ahead by precincts, legislative authority for which may be had in most States, though in Texas it requires a constitutional amendment.

Take a case in illustration: Ellis county, Texas, a great agricultural county, without any large city, and with a tax rendition (low) of \$36,000,000, has twice within recent years refused to vote extra taxes for roads, but as soon as authority was given to bond a subdivision one justice precinct—say one-eighth of the territory—voted by more than four to one for \$250,000 for roads, 23 cents on \$100 annually.

So that when a start of this sort is made, generally from the county-seat, or, better, business town, the work done will be incentive to others to take it up, and more will be accomplished in this way than to wait for the co-operation of the entire county.

The MANUFACTURERS' RECORD calls for discussion of "good roads in the South." Many features of the territory, as the former big plantation, inaccessibility of many counties to railroads, general undeveloped condition of some large portions of the territory, etc., has made the subject, as proposed, especially appropriate. Having given my views in the matter, I feel that it would be unjust to the South did I not say, before closing, that she is not only now making some progress in this great work, but that more than 70 years ago she had roads that were models, and I know whereof I speak.

In my early youth it was my good pleasure to go from home more than a full day's journey. I was permitted to go on a visit to relatives and friends in the Army of Tennessee, camped on the banks of Duck River, in the Middle Tennessee Basin. Out into the wide, wide world I saw many things around me in nature and art that I had never seen before, but I saw nothing on that trip that excited and interested me as much as a Middle Tennessee turnpike, not even the army in camp nor on drill, and while this road, over which you could travel with such ease, wet or dry, and over which teams could pull such loads, was a show to a boy "green from the mountains," it must have been an object of wonder and admiration to even the soldier himself, looking at it for the first time.

The Federal soldier, coming from broad Western prairies, and proud of many things in which, from his viewpoint, his section had outgrown the other, must have admitted to himself that the splendid system of turnpike roads leading out of Nashville and Lexington, Ky., had one feature, at least, in which the Southern section surpassed his own.

Coming to Nashville by boat, and pushing south over rock roads, he saw their full value when he reached their end, and had it emphasized later when the difficulty of transportation came so near wrecking Rosecrans' army at Chattanooga.

Wagon Roads from an Engineering Standpoint.

By W. S. DELERY of Houston, Tex.

[Written for the Manufacturers' Record.]

Why have we not had good roads before this? Are they a necessity? Will it prove a good investment to put out the money necessary to build a first-class road?

When are we to get these good roads?

How are we to go about the work in order to create an interest at once that will facilitate the movement?

Answering the first question, why have we not had good roads before, I would say that we have had them wherever the South was inhabited by enterprising citizens and the country was producing anything that had to be drawn by wagon to market. But a great area of our Southland has until recently been given over to the lumber and cattle industry. The former demanded railroad trackage, the latter could be driven great distances to market without a road.

I think these facts account for our not having roads in the days that have past.

Are good roads a necessity? I think the demand for them now, on the very eve of development, indicates that they are. Our Southland is now drawing the settlers from the old States, and these people know the value of good roads, and they are starting in early to secure them, for well they know from past experience in the old States that a country stands still until the roads are provided for man to get about and haul his products.

It will prove a good investment. In all the Northern States, when the country is very broken, road-building in the early days with the crude implements was very costly, but the people that are now moving to our States found that money put into roads was saved to them ten times over, and they continued the good work until the old States are a network of macadamized roads. This is particularly noticeable in the wheat-growing sections.

Watch a corporation that has anything to move across the country; they first prepare the road over which the tonnage is to be drawn.

The writer has seen first-class roads built, to be used only one to two years, by parties desiring to haul timber, stone and materials to be used in construction, etc. To an

inexperienced man this would have seemed a great waste of money, but experience has taught us that it is economy. When are we to get roads?

We are to get these roads just as soon as the people in the South that are interested in our development consider this question carefully. And it is my opinion that the time has come.

The Southern States have been largely supported by the timber, iron ore and other natural resources that our all-wise Creator had stored up for us, like a father, put away an inheritance for his children. But we are rapidly checking away this inherited bank account, and when it is gone we will feel the pinch of poverty unless we have prepared the way for the man with the hoe; he alone can save us.

Mark out the lines that are to connect his fields with the markets in town, and we need have no fear for the future of the South. The same land that produced those valuable forests without cultivation will respond to man's touch with the plow and the hoe, and if we have made these lands accessible we will not experience any check to our march to the front. But if we neglect to open up the roads we may expect the same backsliding as did the great timber and coal States of the North and West after they had cut away their timber, shipped out their coal, checked out their inherited bank account.

How are we to get these roads? That question seems answered to me. I know the spirit and energy of the Southern man when once aroused. Then again, we are to have the help of our brother from the North, who has had the desired experience; he will be ready to co-operate with us at every turn.

Let each school district ask for a few short stretches of roads leading to and from the schoolhouse. This seldom meets with opposition in any community. And the example will do the work. There will be a general demand for an extension of these short roads, and they will be extended on and on until there will be no end to them, just one circle after another. Each county-seat, city and town should adopt this plan to demonstrate the value of good roads.

Organize road clubs. The young people should take the lead in this movement for their social betterment depends on it.

With these roads one will no longer dread the trip to repay that visit from the neighbor five miles away. It will be only an evening drive, the same as the trip across the city in a street car.

The cost of this work falls largely on the large landowner and the corporations and non-residents.

The road-building can be handled in a way that the small farmer will earn in road-building and the furnishing of feed and supplies to the road workers all he is taxed and more for his share of the cost of the work. In fact, the building and maintaining of these roads will prove quite a wage producer for the small farmer and young laboring men in every community. There will be no necessity for the young laboring men to go away from home in search of work; the work will be at their door.

Care should be given to the location of a road, the same as to a railroad.

First, the route should be surveyed, so as to ascertain the short distance between the two points to be connected.

A straight line should not be diverted from, only in cases where property through which the road would pass would be damaged to too great an extent, and in cases where the first cost could be greatly reduced by following a more circuitous route, the same as where curves on railroads are introduced to avoid heavy cutting through hills and the building of high embankments across valleys. The shorter the distance the less mileage there is to maintain during the life of the road, as well as the great saving of time for those using the road.

When you stop to consider how long a time the road is to serve and the cost of maintaining it, you will not attach so much importance to the first cost where funds are available. But instead you will locate it so as to reduce the distance and save as much time for the traveler as possible.

Our great systems of railroads that were built in the years gone by are now retracing their steps, making cut-offs to shorten their roads, as well as reducing the hills and filling across the valleys. They find that shortening the distance pays; also that preparing the grade line so as to enable them to draw the most tonnage with the least power is in line with economy. What is true of railroads will apply to wagon roads; hence we should profit by their experience.

You will also note that there was more railroad building the past three years than in previous years. The same demand that called for the new lines of railroads is now calling for the good wagon roads. The South is settling up, and settling up fast, and to keep pace with this development we must get busy on our roads in order that ample time is had to properly construct and properly locate them. Serious mistake will be made if this matter is delayed and a grand rush is made to catch up; costly and faulty construction will be the result.

Main highways should be as straight as possible and practical. Branch roads should be used to reach intervening points. Under no consideration should the main highway be made to leave its course when a branch road can be made to serve the same purpose.

After the road is located the grade line necessary to reduce the hills and elevate the valley to a uniform slope is next to be considered.

Here the first cost must not be allowed to figure too prominently. Remember that loads are to be drawn over the road; hence the ascent and descent must not be too steep. Ascending long hills, rests, or level stretches in the grade line, should be provided at least each half mile. A continuous drag up a hill is killing on a team, and very mate-

rially reduces the tonnage that can be drawn, and, like the steep grades on a railroad, call for more power and equipment to move a given tonnage.

While we are considering this question of fixing the grade line, the percentage of ascent and descent of the road, I think it well that we look at this point from all sides. There are but few of us that have not seen the leading team taken from the front wagon back to help the following wagon up that steep incline in the road. While this is proper, and can be done economically where two teams are on the road at the same time, it serves to remind us of the fact that it takes more team power to draw a load over a steep road than it does over a level one.

And the point is this, the steep portions of a road fix the load that can be drawn over that road, regardless of the fact that three-fourths of the road may be level, because only in a few instances will two teams travel the road together, most of the loads will be drawn by single teams; hence the economy in reducing the hills as far as practical in the first cost of the road.

After the grade line has been fixed the material necessary for the building of the road should be borrowed in such a way as to leave perfect drainage along the ditches on each side of the roadway. Care should be taken to protect the ends of the ditches, where they discharge into the creeks and rivers, so as to remove all possibility of washing and caving in times of excessive rainfall.

Perfect drainage and a properly diverting of flooding waters are the essential features in maintaining good roads.

To prevent washing in the ditches, great care must be taken in hilly country in matter of drainage. In a level country this obstacle seldom presents itself.

Let me dwell a little on this question of drainage, for without perfect drainage we cannot expect to maintain good roads at a reasonable cost.

Where the road traverses a broken country the skill of the engineer will be put to the test in handling the water economically. We will assume that any experienced road engineer will take advantage of any divide going in the right direction and keep his road on the summit so as to be benefited by the water leaving his road in both directions. If he permits it to flow too rapidly alongside the road, down the hillside, he will soon lose the road, due to the washing away of the earth. It is a wise plan to provide numerous small masonry culverts under the road, so as to permit the water to follow its natural course as much as possible. Avoid conducting water along the side of a road in a broken or hilly country; it cannot be done with any degree of safety or economy. Perfect drainage means a permanent sub-base, and without a permanent sub-base for a road you can never hope to maintain anything like a good road at a reasonable cost.

The writer had an occasion 15 years ago to excavate across one of the main roads approaching a town in Southern Louisiana. The road referred to had been in use more than 50 years at that time, and to use the expression of an old settler, the brick walls of every old wrecked sugar mill in the parish had been dumped into that road in an effort to keep the wagons that passed that way out of the mud.

The excavation made showed that the brick that had been dumped into the holes from time to time had gone to the bottom and the mud worked through to the top. Bricks were found three feet beneath the surface, with layers of earth between layers of brick. The cause of this was that the sub-base had not been properly prepared, no drainage obtained; hence brick placed in the holes would have continued to have gone down and the mud would have continued to come to the surface, rendering the road impassable in wet weather as long as the drainage was not perfected.

There is but one way to build a road that can be maintained at a reasonable cost, and that is, to build from the bottom up and not from the top down, as all temporary work is now done. Hundreds of thousands of dollars annually are now thrown away on temporary roads that give but poor service at best. We must quite this class of work and start right, now that we have decided to have good roads.

Bear in mind that so long as you conduct water you have it to care for, and that large volumes of water are harder to handle than small volumes.

Where only a few openings are provided under a road the water is necessarily concentrated, and when freed or turned loose the rapid discharge of this collected body of water will cause an overflow and do serious damage to property over which it is discharged. For this reason it is good engineering to permit water to follow the natural course as nearly as possible. Never try to conduct it any great distance.

In a level country, such as we have in our coast States, I find it good practice to put in frequent openings so as to be rid or free from the care of the rainfall at the earliest possible moment. The slight fall of the coast country will not permit of obtaining ditches that will care for excessive rains at a reasonable cost. Then the vegetation clogs up the shallow ditches, causing overflows on the roads, doing great damage, washing away the wearing surface or softening the sub-base, as well as causing the overflow of lands at points to which water has been conducted.

With a proper location and ample drainage provided, and water diverted, the next point of importance is the top soil available for a wearing surface. It has been my experience that it is not necessary to go away great distances to obtain ballast, shell, etc., for this wearing surface; make the soil at hand what you want it to be. If you have rock at hand, provide a crusher and make stones varying from two to six inches square in size to be used for a base next to the natural soil; make this base from six to ten inches thick, cover this with a very fine screening of the same rock to a depth of three to four inches. Roll well to settle, and you have an excellent road, one that will cost very little to maintain, and one over which it will be a pleasure to drive or draw a load.

In the coast country shell can be substituted for the rock. In the interior gravel will answer equally as well, using the screenings for the top, placing the large gravel in the base.

In a black-soil country, where no material of the kind previously mentioned can be had, I would recommend the use of burnt gumbo.

Take the black or brown stiff gumbo land and work it up into layers or cakes, the same as for brick, except that the layers are only to be two inches in thickness; burn it the same as brick until it becomes hard. Then crush it up into small pieces about the size of gravel. Use the screening for the top the same as the rock, and you will get a good substantial road. This ballast has been proven a success wherever tried. The plant for burning the gumbo should be a small portable plant, so as to make the ballast alongside of the road at one-mile sections, and to save hauling, providing fuel is accessible.

There are some sections where only sand is available for road-making. Sand is

not bad. Since the discovery of oil in the South we find that the best and cheapest roads can be made from sand when properly oiled. In fact, in Kansas City the best macadamized roads are being oiled now in order to reduce the cost of maintenance. It is surprising to know that the oil can be applied for less cost than sprinkling with water. When the oil is properly applied the dust is gotten rid of and the roads shed the water and no washing of ruts in roadways ever occur.

This discovery of the use of oil as applied in Kansas City and all over California means good roads at very low cost. In our Southwestern States it is only necessary to build bridges over the streams and grade the road up out of the natural soil in order to have good roads.

There is not sufficient rainfall to cause any damages; in fact, the dust where traffic is heavy is the only thing we have to cope with. This we can do by oiling the roads properly. Two applications of oil, properly applied, makes an ideal smooth, dustless road in the Southwest.

In the Southeastern States, where rainfall proves so detrimental to roads, I find that oil will cause the water to shed, stop any washing out of ruts, as well as any churning.

Through the coast States, where direction of roads would facilitate drainage, I would advocate a ditch on each side three feet deep, six feet wide on top, two feet wide on bottom. The soil taken from ditches, carried to the road center, properly graded and sloped and properly oiled. This style of road can be built for \$1200 per mile. This is the cheapest class of good roads that can be built, and it is within the reach of the smallest settlement, and it will hold up under heavy traffic as good as a macadamized road.

No settlement should be without these roads. You cannot accomplish anything without such a road, and the saving of time to drivers alone will soon pay for the road. And where there is any tonnage to be moved, this road will show a saving of one cent per hundred pounds for each mile hauled.

Experiments with oiling of the track on railroads have shown that the wear and tear on the engines, as well as on the rolling stock, is reduced to a minimum, due to the fact that there is no dust to get in the journals and boxes to grind them out. This will be found true when applied to wagon roads.

The life of axles and spindles will be preserved indefinitely if we will use oil and get rid of the dust.

Do not pass this question of oiling roads by without due consideration. There is far more to it than appears from the first glance.

All of our counties are spending for repairs on the existing crudely-constructed county roads annually more money than it would cost to build and maintain good roads were the roads properly built.

To maintain a good road due consideration must be given to drainage, for without perfectly-drained roads they will be found expensive to maintain; in fact, they must be rebuilt about every two or three years when not properly drained. Good drainage and good oiling will stop this annual outlay. And the money saved can be used in building new roads.

First-class roads are the making of any town, county or State, and without them a State cannot hope to secure good settlers. The wear and tear on vehicles that use bad roads will, if invested in good roads, show a saving to any community.

These are facts worth considering. Do not continue in the old ruts. In this day of advancement lay a foundation for good roads the same as you do for a good home, good government, good morals, etc. The roads are our pathway; be sure to have them smooth, and we will find that our journey through life will be greatly facilitated.

From experience I find that the proper way to build good roads is by contract. First select an experienced civil engineer, one with a clear record and a reputation for good road building. Have the engineer make a careful survey of the proposed route, obtain samples of soil on each mile traversed by the road. With this information at hand he can prepare close estimates of actual cost of the road to be built. As to specifications for road-building, these must vary to conform to proposed use of the road and local conditions considered. One feature, however, must be kept in view; that is, that the roads must be repaired from time to time; hence in borrowing material to make the first embankment, care should be taken to leave the borrow pits in the best possible shape for future use; leave a good wide berm between the foot of slope of the road and the borrow ditches, so that additional earth may be had later without having to bridge the ditch; leave the borrow pits to drain, as stagnant water in ditches causes sickness, chills and fever, and no roads at all are preferable to ones that bear chills and fever. Nine cases of malaria out of every ten could be traced to road ditches that do not drain if an investigation was made. In the future we must not tolerate such conditions. See that all ditches are made to drain, and remove all possible chance of creating a nuisance along the roadside.

When all estimates have been made, specifications prepared, invite all parties living along the route, and especially those interested in the road, to bid on performing the work. Have it clearly understood that, all things being equal, the man residing on the road will be given the preference of the work.

The specifications should exact that all work shall be maintained for one year by the contractor free of cost to the county. Contracts should be made each year for the maintenance of the roads with some responsible men living on the road, giving about 10 miles to each man. Where this method is adopted counties will experience a saving of not less than 50 per cent, in cost of road maintenance.

A man that has contracted to keep up a road will see that every little wash or erosion is stopped before it does any serious damage that will prove costly to repair.

Under our present system of annual repairs we often find that a stitch in time would have saved nine. Prizes should be offered for the best-kept section of road each year, and an annual inspection had in which all road contractors participate, where an opportunity is afforded to each one to learn of the different methods employed to obtain desired improvements. This road inspection would soon become more interesting to a community than a county fair.

The pride of a county would be its good roads. Roads would come first all the time. These roads might well be the pride of a county, for they would be money-savers; nothing could detract from them.

You may till your soil and increase its production, but it will all be for naught unless you provide a road over which the products can be economically drawn to market, for you will find that you cannot produce in competition with your neighboring county who has good roads.

I have seen many a farmer go broke because he failed to take into consideration the cost of hauling his products from the field to the railroad. But few of our farmers keep any books or make any effort to ascertain the cost of any particular part of their work. If I could get them to keep books I would soon have them building good roads, for they would find that the bad stretch of road between the field and the loading station is the cause of their losses. Think of what it means to draw two tons where only one had been drawn before. Think of what it means to have a team walk four miles an hour where only two miles were walked before. To one man this is an item worth considering; to 100 men it is an item of expense that must not be overlooked any longer.

We are drawing on the resources of the county heavier every year in our effort to maintain the paved streets in the cities that have proven so attractive to man. It is about time to draw the line and stop this concentration. Carry the pavements into the country and induce man to come back home where his roads can be maintained at a much less cost; every item in the cost of living reduced; where every man can be a producer. With these improvements we will soon see a great change. Only those who are forced to do so will live in a city. Business will be transacted on the farm. Our highways will be lined with modern homes, and the lines between town and country will be hard to locate. Our nature will be made mellow again by that beautiful road meandering the running brook. The skill of the engineer evidenced in the outline of the roadway, the sloping banks on the side of the cuts through the hills, the masonry that carries us over the ravines and gulleys will give us a new inspiration to exert ourselves in an effort to fashion our lives symmetrically in order that we, like the road, can carry our load through life with the least resistance.

From an engineering standpoint is a good point from which to view a road. It is the engineer that opens up the new country, blazes the trail through the forests, sets the stakes across the plane, travels miles out of way to cross streams, because no roads have preceded him. The engineer knows the value of a road to enable him to get from point to point to get his material and supplies to the front. Many a community has profited by his visit, for he usually builds the first roads and sets the example. The settlers watch him and see the results, and in most instances they catch the inspiration and the good work is continued until the white, smooth surface can be seen reaching out in all directions. Road, beautiful road, I hope to have the pleasure soon of meeting you on each quarter-section throughout the Southland.

To secure good roads let the merchants in each town build a few short stretches of good roads approaching the town. The school trustees advocate the building of short stretches of roads approaching the school houses. This movement seldom meets with any opposition, and the community will soon be aroused to the great benefits to be derived from good roads from the experience with the short stretches; a community will be found quite willing to enter into any plan that will secure for the county a good system of roads. I do not favor bond issues for roads. Each generation should take care of itself. I repeat, I believe in laying a road tax on the county at large to build roads; the interest usually paid on bonds will be saved to the people and the roads can be had for a less sum than is usually paid on interest. It is surprising how trifling a sum each citizen will be required to pay on a road tax; in fact, the actual settlers will receive more for work they perform on the roads than they ever pay in on the tax. Remember, the non-resident landowner bears the burden.

Houston, Tex.

BAD ROADS AS AN INCENTIVE TO AVIATION.

George B. Robertson, superintendent sawing department Jackson Bros. Company, Whaleyville, Va., writes to the MANUFACTURERS' RECORD:

"I would suggest that you keep before the people at all times, and encourage them as best you can, the building of good roads, which would perhaps be worth more to the South than anything else that could be done for it. I would love to see our Government spend as much for public highways as it has spent for the digging of harbors and rivers. I would suggest that it build a public highway 60 feet wide from every State capital in the United States, and a 40-foot highway connecting up every city in the United States with 50,000 or more people, and every city in the Union connected up with every county-seat with a 20-foot highway. This would educate the farmers, or the interior people, to build all of the side roads necessary.

"I hope to live long enough to see the above roads built, and feel as well as I do today; then we will only need airships for war purposes. I have an idea that the bad roads in Ohio are the parents of the Wright's idea of building an airship."



IMPEDING GRADE REDUCED BY HEAVY CUTTING.

GOOD ROADS

WEEK'S HIGHWAY RECORD.

Progress in Southern Road and Street Improvement.

[Full details of highway undertakings are given in the Construction Department.]

Bonds Voted.

Blackwell, Okla.—City voted \$2500 bonds for street improvements.
Humboldt, Tenn.—City voted \$30,000 bonds for road and street improvements.
Madill, Okla.—City voted \$2500 bonds for street improvements.
Nashville, N. C.—Nash county voted \$20,000 bonds for road improvements.
Tulsa, Okla.—Tulsa county voted \$400,000 bonds for road improvements.

Bonds to Be Voted.

Granbury, Tex.—Hood county votes November 20 on \$25,000 bonds for road improvements.
Newport, Ky.—City votes November 2 on \$100,000 bonds for road and street improvements.

Contracts Awarded.

Atlanta, Ga.—City awarded contract for paving Marietta street with wood blocks.
Baton Rouge, La.—City awarded contract for 28,000 square yards bitulithic paving.
Fredericksburg, Va.—Stafford county awarded contract for constructing one and one-half miles gravel road.
Little Rock, Ark.—Schlenker Land Co. awarded contract for the construction of road to cost \$4000.
Louisville, Ky.—City awarded contract at \$12,000 for paving portion of Preston street with granite blocks.
Norfolk, Va.—City awarded contract at 49 cents per square yard for belgium block on Chapel street.

Contracts to Be Awarded.

Dallas, Tex.—City opens bids November 5 for paving Highland and Cedar Springs avenues.
Ensley, Ala.—City will advertise for bids for further street paving.
Fredericksburg, Va.—Lancaster county will construct macadamized road from Kilmarnock to Carters Mill.
Houston, Tex.—City will contract for paving portions of Dallas, Main and San Jacinto streets and Washington avenue.
Lake Providence, La.—City opens bids November 15 for paving two miles of sidewalk.
Lenoir, N. C.—Lenoir and Blowing Rock Turnpike Co. will contract for 25-mile macadamized road to cost about \$125,000.
St. Augustine, Fla.—City will spend \$10,000 for paving and repairing streets.
Vicksburg, Miss.—City opens bids November 1 for vitrified brick paving on 1st street.

AMERICAN ROAD-MAKERS.

Machinery and Implement Exhibit at Their Columbus Convention.

[Special Cor. Manufacturers' Record.]
Columbus, O., October 27.

In connection with the sixth annual convention of the American Road-Makers' Association, in session here this week, there is an interesting exhibition of machinery and equipment used in the construction of highways. The manner in which the various manufacturers got their exhibits into shape would never indicate to one that this is the first exhibition ever held in connection with the conventions of this association. That all details have been worked out so splendidly and expeditiously has been due to Secretary E. L.

Powers of the American Road-Makers' Association and his several aides. The exhibits are housed in several buildings at the State Fair grounds.

Among the exhibitors and exhibits are:

The Huber Manufacturing Co., Marion, O., traction engine and road roller.
Kelly-Springfield Road Roller Co., Springfield, O., road rollers.
Banting Machine Co., Toledo, O., Buffalo-Pitts road rollers.

Williams Contractors' Supply Co., Columbus, O., the Austin-Western line of road machinery and equipment.

J. I. Case Threshing Machine Co., Racine, Wis., road rollers and traction engines.

Troy Wagon Works Co., Troy, O., dumping wagons.

Watson Wagon Co., Canastota, N. Y., dumping wagons.

Bruner Steel Wagon Co., Wapakoneta, O., dumping wagons.

Universal Road Machinery Co., New York city, portable rock crushers.

Kilbourne & Jacobs Manufacturing Co., Columbus, O., steel and drag scrapers, plows and other road equipment.

J. D. Adams & Co., Indianapolis, Ind., road scrapers.

Arthur Koppel Company, Pittsburg, Pa., scoop scrapers and contractors' supplies.

Kindling Machinery Co., Milwaukee, Wis., squeegee street-cleaning machine.

Gauntt Company, Fort Wayne, Ind.; Advance Concrete Mixer Co., Jackson, Mich., and the Cargill Company, Columbus, O., concrete mixers.

Universal Portland Cement Co., Chicago, Ill.; Alma Portland Cement Co., Wellston, O., and the Atlas Portland Cement Co., New York city, Portland cement.

Galion Iron Works Co., Galion, O., cast-iron corrugated culverts, dump wagons and crushers.

The American Rolling Mill Co., Middletown, O., corrugated culverts.

American Sewer Pipe Co., Akron, O., vitrified clay curbing.

National Fireproofing Co., Youngstown, O., sewer pipe.

Petrolithic Paving Co., Los Angeles, Cal., road machinery.

Various paving materials were exhibited by the National Paving Brick Manufacturers' Association, Indianapolis, Ind.; the Dunn Wire-Cut Lug Brick Co., Cincinnati, O.; R. S. Blome Company, Chicago, Ill. Dust layers and road preservatives were exhibited by the Indian Refining Co., Cincinnati, O.; Barrett Manufacturing Co., New York; Standard Oil Co., New York; American Asphaltum Co., Chicago, Ill.; Robeson Process Co., Au Sable Forks, N. Y.; American Tar Co., Malden, Mass.; John A. Lamson, Jr., Summitt, N. J., and Continental Bitumen Co., Toledo, O.

The convention was called to order on Tuesday by Vice-President Archibald H. Huston of the Ohio Good Roads Federation. Addresses of welcome were made by Governor Judson Harmon in behalf of the State of Ohio, and by Mayor C. A. Bond in behalf of the city of Columbus. Following these were many interesting and instructive papers on various phases of highway improvement work. Included in the program were the following:

"Co-operation in Road Building," by Nahum J. Bachelder, master of the National Grange, Concord, N. H.

"The National Government as a Factor in Road Improvement," by Logan Waller Page, director of the office of public roads,

United States Department of Agriculture, Washington, D. C.

"New York State Road Work," by S. Percy Hooker, chairman Department of Highways, State of New York.

"Blazing the Way on the Pacific Coast," by Samuel H. Hill, Seattle, Wash.

"Michigan's Road Problem," by Frank F. Rogers, Deputy Highway Commissioner, Michigan.

"Work of the Ohio Good Roads Federation," by Secretary M. M. Maxwell.

"Automobile Registration and Good Roads," by Carmi A. Thompson.

"The General Assembly and Road Improvement"—for the Senate, Hon. W. A. Alsdorf; for the House, Hon. Walter W. Vaughan.

"The Daily Papers and the Good Roads Movement," by John T. Mack, Sandusky, president Ohio Associated Dailies.

"The Grange and Good Roads," by T. C. Laylin, Norwalk, Master Ohio State Grange.

"The Weekly Paper and the Good Roads Movement," by C. E. Bryan, London, O., president Buckeye Press.

"Road Improvement in California," by H. R. Postle, Los Angeles, Cal.

"Historic Highways of American Expansion," by Prof. A. B. Hulbert, Marietta, O.

"Rural Delivery and Roads," by H. H. Collins, Zanesville, O.

"Preparing the Way for Future Highway Improvement," by A. N. Johnson, State Highway Engineer, Illinois.

"Modern Road-making," by Walter W. Crosby, chief engineer highway division, Maryland Geological Survey, Baltimore.

"Progress in Road Building in Pennsylvania," by Joseph W. Hunter, State Highway Commissioner, Pennsylvania.

"State Road Work in Maine," by Paul D. Sargent, State Highway Commissioner, Maine.

"New York State Highway Laws and Roads," by George C. Diehl, secretary good-roads board, American Automobile Association, Buffalo, N. Y.

"New Materials for Use on Roads," by Horatio S. Earle, Detroit, Mich.

"The Conditions that Confront West Virginia in the Solution of the Road Problem," by Charles P. Light, State Highway Commissioner, West Virginia.

"Highway Improvement in Virginia," by P. St. Julien Wilson, State Highway Commissioner, Virginia.

"The Progress Made in Road Building in Connecticut," by James H. MacDonald, State Highway Commissioner, Connecticut.

"Better Roads in Their Relation to the Railways," by George T. Barnsley, Chief Road Engineer, Allegheny county, Pennsylvania.

One of the special features of the convention was the building of a section of model roadway with the use of modern road-building machinery at the fair grounds. Warren Bros. Company of Boston makes an exhibit of a sample road 900 feet long, the macadam surface to be treated with Tarvia, Asphalt Road Oil and Carbo-via to show the nature of the materials, the method of applying them and the required machinery. The Robeson Company is building a separate road to show Glutrin. The Universal Road Machinery Co. has a crusher preparing stone, using its own bin and screen crusher belted to a Geiser traction engine.

A. C. BOUGHTON.

Norfolk County Roads.

Mr. William G. Brown, Portsmouth, Va., engineer in charge, informs the MANUFACTURERS' RECORD that \$210,000 are available for work on macadam roads in Norfolk county, Virginia, under the supervision of the State Highway Commission.

Work is under way upon three roads, a stretch of nine-tenths of a mile on an extension of the Jamestown Boulevard having been completed at a cost of \$6399.37. Sixteen per cent. of the road from Portsmouth to Deep Creek, a distance of 6.7 miles, has been built at an expenditure of \$6895.73. 20 per cent. of the road from Portsmouth to North Pinner's Point, a distance of 2.7 miles, has been built at a cost of \$4063.72, and 5 per cent. of the road from Berkley to Great Bridge, a distance of nine miles, has been built at an expenditure of \$3559.67. The Jamestown Boulevard extension is of limestone, while limestone, granite or trap has been used on the other roads.

Across the Blue Ridge.

Mr. H. M. Magie of Waynesboro, Va., writes to the MANUFACTURERS' RECORD:

"The Rock Fish road from Waynesboro over the Blue Ridge Mountains to a point 15 miles west of Charlottesville, is to be built jointly by Albemarle, Nelson and Augusta counties, each of which has contributed, State, county and private funds, \$33,000 in the aggregate. The Virginia highway commissioner will superintend the construction. It is now proposed to organize a private company to build this road at cost. This movement is headed by several patriotic and wealthy citizens of this section, who plan to restore this link by improving a road which was a permanent highway in the early days of the Commonwealth and which when completed will connect Eastern Virginia with the present macadamized roads of the Shenandoah Valley through the only passable gap in the Blue Ridge Mountains. The writer has been selected as secretary, and will take pleasure in answering all inquiries regarding this road. It will be built in 1910."

Big Stone Gap's Vote.

[Special Dispatch to Manufacturers' Record.] Big Stone Gap, Va., October 26.

The town today voted \$30,000 road and street bonds. It will build about six miles macadam road by contract, probably, and buy road machinery.

JOHN W. CHALKLEY.

Notes.

The Good Roads Club of Georgia will hold a convention at Atlanta November 10.

The East Tennessee Good Roads Association will hold its annual session at Morristown November 9.

The investment of Montgomery county, Alabama, in road material and machinery is valued at \$109,200.

State Roads Commissioner C. P. Light of West Virginia is making plans for a meeting of all the county road engineers of the State.

The District of Columbia Good Roads Association has been organized with Messrs. Clarence Moore, president; R. N. Harper, R. H. Lynn and J. G. Hopkins, vice-presidents; Ben Hellen, secretary; W. H. Hibbs, treasurer, and Ashley M. Gould, Gist Blair, W. C. Eustis, W. B. Hibbs and Ira E. Bennett, executive committee.

East Texas In Line.

[Beaumont (Tex.) Enterprise.]

Thus, one by one, the East Texas counties are falling in line in the campaign for better roads, and if the same gait is kept up for a few years that has been maintained this year it will not be long before there will be continuous stretches of highway leading to every part of the country, and every county-seat will be connected by continuous good roads. With these main arteries once established, the balance of the road problem will care for itself.

MECHANICAL

The Monarch Puddling Roller.

An order amounting to over \$32,000 for steam rollers alone is unusual and worthy of note. This order was given to the Monarch Road Roller Co. of Groton, N. Y., by MacArthur Bros. Co. and Winston & Co., the contractors for the Ashokan dam, now building in the Catskill Mountains for the city of New York. This firm of contractors is composed of the firm of MacArthur Bros. Co. of Chicago and Winston & Co. of Richmond, Va., J. O. Winston of the latter firm having direct charge of the work.

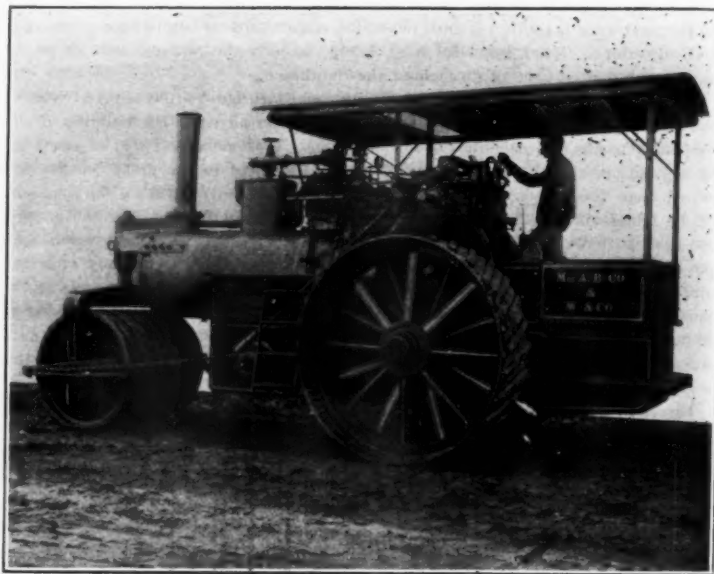
In the construction of this dam, in addition to the concrete and stone used in the masonry work, there must be employed over 6,000,000 cubic yards of earth as an embankment on either side of the concrete and masonry core wall, and this vast amount of earth must be spread in layers not over six inches deep, moistened and rolled with steam rollers. This work will require seven years, and the rollers in the order referred to are to be used.

In the construction of dams and reservoirs, where the earth used must be made

the surface of a macadam road, and the great steaming capacity of the boiler and powerful engines are necessary to overcome the constant drain occasioned by such difficult work. The heating surface in the boiler is about twice that in an ordinary steam roller boiler, and the engines are in proportion.

On other jobs where rollers were used on this kind of work it was observed that the wear on the gears was tremendous, two sets of gears being frequently used in one season. With this experience in mind the gears on the Monarch puddling rollers were made unusually heavy and wide, the main driving gear being seven inches wide and having very heavy teeth. The engine shaft pinions and their connecting gears are made with a four-inch face, and have teeth cut from solid stock so as to insure close contact and smooth and silent running. The gears on these machines have been in use during the entire season, and the wear thus far is hardly perceptible.

In the general construction steel has been substituted for cast iron in all parts, with a result that the rollers are practically indestructible. In general design the rollers are the same as the standard Mon-



THE MONARCH PUDDLING ROLLER.

imperious to water, it has been the custom of engineers to specify that the earth shall be spread in layers of four to eight inches depth, then moistened and rolled with either a horse-drawn or steam roller. Horse-drawn rollers have proven unsatisfactory because it was impossible to pull a roller of proper weight and compression through the loose, moistened soil. Steam rollers of ordinary type for road construction failed to give good service because they are not designed for work under such severe conditions.

Among the notable engineering and contracting works where the Monarch rollers have been used in recent years may be named the Torresdale filter beds and reservoir for Philadelphia, the California (O.) filter beds and reservoir for Cincinnati, the Cedar Grove reservoir at Little Falls, N. J., and new filtering plants and reservoirs of the cities of Pittsburg, Harrisburg, Washington and Baltimore, as well as the new dam for water storage for irrigation purposes at Belle Fourche, S. D.

The noteworthy features of the Monarch rollers used are the unusually large heating surface in the boiler, the powerful double engines, the very heavy gearing and the great strength of all parts.

The rolling of soft, yielding earth, moistened so that the roller sometimes sinks so deep that the fire-box drags on the surface, is quite a different proposition than rolling

arch rollers which are built for use on macadam and other kinds of road-building.

Quarrying Marble in Tennessee.

By B. C. HODGSON.

The Tennessee marble deposits in Knox, Union and Blount counties, within 20 or 30 miles of Knoxville, differ from those in other parts of the country. Instead of lying in regular uniform beds, as in Georgia and Vermont, the Tennessee strata are uneven, particularly at the surface. This is due to geological disturbance, followed by the action of water and the abrasion of glaciers.

The marble crops out in piles of large boulders, separated by wide cracks or mud seams. Frequently the seams gradually close below the surface, approaching a solid formation. This circumstance makes quarrying more costly and uncertain than if the deposits were solid and uniform.

An accompanying illustration presents a view of the quarry of the Evans Marble Co. at Friendsville, Tenn., in Blount county, 20 miles south of Knoxville, on the Louisville & Nashville Railroad. The value of the marble secured here more than offsets the difficulties attending its production. The stone is of fine grain, compact and hard. It is practically a pure carbonate of lime (98.78 per cent.), and contains only small traces of iron

and sulphur, making it an excellent material for building purposes. It is secured in several shades, pink predominating.

This quarry has been in operation about 15 years, and a number of blocks were

or engines and two sets of steel or bits. These were mounted one at each end of the frame, on the same side of the machine, working in the same cut or plane. This arrangement is practically two single

arrangement over the "double-head" pattern results from the decrease in vibration. In the latter the two engines are apt to get "out of step," striking at the same time instead of alternately, thus causing the machine to rock and to throw the channel out of line. The runner also has much easier control over the "VW" channeler than over the "double-head." He is not required to get the engines in step. That is done automatically by a valve motion which drives one gang up while the other is on the down stroke. The two engines thus balance each other, so that the channeler runs smoothly and with little jar. It is possible to run the "VW" engines at a higher speed than either the single or double "G $\frac{1}{2}$ " channeler.

Another advantage secured by reducing vibration is in handling the track. The track is much less liable to work out of line with the cut, causing trouble from binding the cutting steels and the consequent wear and tear on the machine. Time is also saved in track shifting, as the rails need not be braced and wedged as firmly as is essential with other types of channelers. This adds much to the actual cutting time during a day's run, particularly when the method of working the quarry makes short lengths of track necessary.

Ordinarily both gangs are run at the same time, but at any time desired the runner may stop either engine and continue the other alone. This is all conveniently handled from the runner's seat by moving a single handle.

Each cylinder has its own cushion valve,

channeler, and, owing to the convenience and simplicity of its controlling devices and the other features mentioned, it is very much favored by the channeler runners and helpers.

The duplex channeler is fitted with a power hoist, by which the cutting heads are raised to the top of the feed screw at the end of a run. This is accomplished by a sprocket chain drive operated by a friction clutch on the feed engine shaft.

The duplex channeler is, of course, heavier than the single machine. But it is moved from place to place in the quarry by means of an improved method of track shifting. When moving, two screw jacks, fitted to the rear of the frame, are used to raise the machine on that side off the rails. The cutting gangs are then fed down until the wheels on the front side are off the track, thus supporting the channeler on the jacks and steels. It is then easy for two men to shift the track forward to the new position, and the machine is then lowered back onto the rails.

With its class "G $\frac{1}{2}$ " channelers the Evans Marble Co. averages 80 square feet of channel per day of 10 hours. Under the same conditions the "VW" channeler cuts on the average 200 feet, while runs of 350 feet have been recorded on various occasions.

It will be noted from these figures that the "VW" duplex channeler has a capacity more than twice as great as the single-head machine, even on cuts of no greater length than 20 feet. The increase in efficiency of the "VW" over two single-head channelers would be greater on runs of greater length.

This excess in capacity over the work of two single machines is explained by the fact that with the "VW" two sets of steels are used in doing the same amount of cutting as one set in the single-cylinder machine, which means that the steels in the "VW" machine retain their cutting edge better in running down a length of steel. The mud or sludge is also less of a hindrance, owing to the greater frequency and alternation of the blows. The other advantages of the "VW" machine also contribute to a great extent in the increased cutting capacity.

The Evans Marble Co. home offices are at Baltimore, Md., with large cutting mills at Baltimore and Knoxville, several quarries being operated in the Knoxville district.

Stevens Rifle With Telescope.

Herewith is an illustration of the Stevens No. 70 visible loading repeating rifle with telescope.

The telescope manufactured to be used in conjunction with the No. 70 rifle is one of the most practical and efficient so far devised. It is 19 $\frac{1}{2}$ inches long, with a power of three diameters, a sight relief 4 $\frac{3}{4}$ inches, and the rear end of the scope is in front of the breech block out of the way of the shell. The rear mount is made to go on the barrel in place of the regular rear sight, and the screw that holds the rear sight will secure the rear mount in the same manner. The front mount is the Stevens new patent split dovetail mount, with screw for locking it securely in the front sight slot.

Anyone can mount the telescope without the aid of a mechanic, as only a screw-



SULLIVAN DUPLEX CHANNELER AT FRIENDSVILLE.

quarried 16x3x3 feet in size on a recent contract.

The stone is quarried by Sullivan class "G $\frac{1}{2}$ " and class "VW" channelers and Sullivan rock drills, mounted on tripods and

channelers on one frame, and enables one runner to operate both.

The Georgia Marble Co. has placed second heads on practically all its single machines, thereby doubling its cutting capacity



EVANS MARBLE CO.'S QUARRY AT FRIENDSVILLE, TENN.

quarry bars. The class "G $\frac{1}{2}$ " channelers have been in use for 12 years. The length of the runs in this quarry seldom exceeds 20 feet, and the average depth of the channel cut is six feet, with an occasional 10-foot cut. All the machines are operated by steam, with 100 pounds pressure at the throttle.

About six months ago the company installed two of the latest type of marble channelers, known as Sullivan "duplex" class "VW" machines. These channelers comprise a recent development, and a description will be of interest.

They are manufactured by the Sullivan Machinery Co. of Chicago. Four years ago the company introduced (at the suggestion of the Georgia Marble Co.) a channeler with two direct-acting cutting heads

ity without any material increase in labor.

The manufacturer carried out the idea of two cutting heads still further, and two years ago placed on the market the perfected "duplex" channeler.

In marble work it is used without a

allowing either or both to be cushioned as desired. This feature is of value when starting down a cut and in working through a mud seam. By means of a cut-



STEVENS NO. 70 REPEATING RIFLE WITH TELESCOPE.

boiler, like the original class "G $\frac{1}{2}$ " machine. In the class "VW" channeler the two cutting engines are mounted on a single standard, which can be swiveled to cut at any angle, from vertical to horizontal. The principal advantage gained by this

off valve the force of the blow delivered by the chopping engines may be regulated to best suit the conditions of the work being done.

The "VW" duplex machine has been found as easy to control as the single-head

driver is needed. The telescope can be easily and quickly removed and the regular sights replaced when desired.

The Stevens Arms & Tool Co., Chicopee Falls, Mass., manufactures this rifle and telescope.

Construction Department

TO OUR READERS!

In order to understand and follow up properly the Construction Department items, please bear in mind the following statements:

EXPLANATORY

The MANUFACTURERS' RECORD seeks to verify every item reported in its Construction Department by a full investigation and complete correspondence with everyone interested. But it is often impossible to do this before the item must be printed, or else lose its value as news. In such cases the statements are always made as "rumored" or "reported," and not as positive items of news. If our readers will note these points they will see the necessity of the discrimination, and they will avoid accepting as a certainty matters that we explicitly state are "reports" or "rumors" only. We are always glad to have our attention called to any errors that may occur.

In correspondence relating to matters reported in this paper, it will be of advantage to all concerned if it is stated that the information was gained from the MANUFACTURERS' RECORD.

ADDRESS FULLY

To insure prompt delivery of communications about items reported in these columns, the name of one or more incorporators of a newly incorporated enterprise should be shown on the letter addressed to that town, or to the town of the individual sought, as may be shown in the item, as sometimes a communication merely addressed in the corporate or official name of a newly established company or enterprise cannot be delivered by the postmaster. This will help to insure prompt delivery of your communication, although it is inevitable that some failures on the part of the postal authorities to deliver mail to new concerns will occur.

WRITE DIRECT

It is suggested to advertisers and readers that in communicating with individuals and firms reported in these columns, a letter written specifically about the matter reported is likely to receive quicker and surer attention than a mere circular.

BRIDGES, CULVERTS, VIADUCTS

Ala., West End.—City will vote November 22 on issuance of \$500 bonds for construction of concrete bridges and culverts. Address The Mayor.

Ark., Batesville.—Independence county has awarded contract at \$2000 for erection of bridge at Bates, at \$1200 for bridge at Waldron and \$3700 for bridge at Parks; Thomas Boles, Fort Smith, Ark., engineer in charge. (Lately mentioned.)

La., Natchitoches.—Boydston & O'Quin, Natchitoches, have contract at \$15,000 for construction of bridge across Lake.

N. C., Albemarle.—Winston-Salem South-bound Railroad, O. H. P. Cornell, chief engineer, Winston-Salem, N. C., will construct two small steel bridges across Long Creek.

N. C., Whitney.—Winston-Salem South-bound Railroad, O. H. P. Cornell, chief engineer, Winston-Salem, N. C., will construct bridge 1250 feet in length, divided into nine spans, each 150 feet long.

Okl., Oklahoma City.—Oklahoma County Commissioners awarded contract at \$18,000 to Vincennes Bridge Co., Vincennes, Ind., for construction of 14 steel bridges in connection with drainage of Deep Fork Canal.

Okl., Tulsa.—Tulsa county voted issuance of \$75,000 bonds for construction of bridges; lately mentioned. Address Tulsa County Commissioners.

Tenn., Knoxville.—Board of Public Works will award contract November 9 for construction of Asylum-avenue viaduct, lately mentioned; plans by W. B. Crenshaw and W. A. Park.

Tenn., Morristown.—James Susong and J. R. Forgey have awarded contract to Converse Bridge Co., Chattanooga, Tenn., for erection of \$10,000 steel bridge across Chuckey River.

Tex., Houston.—City and Harris county contemplate construction of two bridges on Houston avenue over White Oak Bayou and over Heuchamp's Bayou; estimated cost, \$30,000. Address H. B. Rice, Mayor, or Harris County Commissioners.

Va., Richmond.—Richmond & Henrico

Railway Co. awarded contract for construction of proposed Shockoe Creek viaduct, one-half mile long, to W. O. Burton of Richmond through Blake Construction Co. of New York.

CANNING AND PACKING PLANTS

Ky., Mount Sterling.—Old Kentucky Packing Co. incorporated with \$25,000 capital stock by Dan N. Young, Roger D. Barnes and Edward T. Hon.

La., New Orleans.—United Molasses Co. of Louisiana incorporated with \$100,000 capital stock; contemplates establishment of canning plant. (See "Miscellaneous Enterprises.")

Miss., Natchez.—C. R. Byrnes is chairman of committee for promotion of establishment of packing and cold-storage plant; cost, \$75,000.

Mo., Kansas City.—Indianapolis Abattoir Co., Indianapolis, Ind. (recently noted to have leased packing plant of W. F. Lyons), will need no further equipment of material or machinery at present.

Okl., Guthrie.—Rinehart Packing Co. incorporated with \$25,000 capital stock by Charles Seeley, Frank Dale, George Rouse and others.

Tenn., Knoxville.—Armour & Co., Chicago, Ill., awarded contract to David Getaz, Son & Co., Knoxville, for erection of addition to and remodeling plant; cost \$11,000.

CLAYWORKING PLANTS

Ark., Jonesboro.—Brick—Barton Lumber & Brick Co., P. C. Barton, president and manager, recently noted to rebuild burned plant, will need only to make repairs; cost within \$5000.

Ga., Macon.—Brick—Central Georgia Brick Co. will rebuild plant reported burned; loss \$10,000.

N. C., Statesville.—Brick—Statesville Brick Co. will establish brick plant; will erect machinery building and fireproof drier; will manufacture common and selected face brick and drain tile; plant to be operated by J. C. Steele & Sons as a demonstrating and experimental plant for their brick machinery. (Recently mentioned.)

Tex., Quanah.—E. A. Glousnitzer will, it is reported, erect brick plant; 25,000 daily capacity.

COAL MINES AND COKE OVENS

Ala., Birmingham.—A. L. F. Coal Co. incorporated with \$5000 capital stock by Geo. W. Crawford, A. W. Bennie and others.

Ark., Fort Smith.—Thompson Coal Co. incorporated with \$50,000 capital stock by P. H. and S. W. Thompson and Allan Kennedy.

Ky., Morehead.—Deer Creek Coal Co., Hiram Bradley, secretary, is preparing to develop 3000 acres of coal land in Carter county; engineer in charge, W. J. von Borries of Harris Engineering Co., Louisville, Ky.

Tex., Edgewood.—C. W. Reeves will develop coal-mine property (not Crockett Coal Co., as lately mentioned).

W. Va., Charleston.—Atlantic Coal Co. incorporated with capital stock of \$6,000,000 by W. F. Baird, H. D. Montgomery, O. H. Bate-man and W. A. Shaffer of Pittsburgh, Pa., and R. M. McKinney of Dearborn, Pa.; company telegraphs Manufacturers' Record it is not prepared to announce details now.

W. Va., Holden.—United States Coal & Oil Co. will increase output of mines; will install tipples, with oscillating screens, turbine generator, etc.

W. Va., Island Creek.—Monitor Coal & Coke Co., Monitor, W. Va., will install mine equipment at Island Creek.

W. Va., Logan.—A. L. Litz and P. J. Reilly, Welch, W. Va., will install coal-mining plant near Logan.

W. Va., Stone Branch.—Stone Branch Coal Co. will erect coal tippie; construction begun.

CONCRETE AND CEMENT PLANTS

Okl., Hartshorne.—Oklahoma City Portland Cement Co., Oklahoma City, Okla., is progressing with construction of plant previously reported; structure to include two-story office building, 50x50 feet; stockhouse, 75x140 feet; machine building, 88x324 feet; machine shop, 40x100 feet; coal mill, 34x117 feet; crusher plant, 50x30 feet, etc.; all of steel and concrete; machinery will have daily capacity of 1200 barrels Portland ce-

ment; will also install another crusher plant to meet railway contract for 500,000 yards stone; entire plant contract awarded to Freeborn Engineering & Construction Co., Kansas City, Mo.; cement company has capital stock of \$1,200,000, and C. B. Blake, Oklahoma City, is president.

Tex., Aransas Pass.—Brick, Tile, etc.—Aransas Pass Pressed Brick & Shingle Co. (recently reported incorporated under "Clay-working Plants") has organized with \$2500 capital stock; Henry Brook, president; J. B. Bailey, vice-president; W. T. Steagall, secretary; A. B. Phillips, treasurer; will establish plant for manufacturing cement brick, shingles, tiles, blocks, etc.; has plans by J. B. Bailey for structure 64x34 feet; wood mill construction; has purchased and will install \$300 brick press with capacity 10,000 bricks daily and shingle machine with capacity of eight squares daily. (See "Machinery Wanted.")

COTTON COMPRESSES AND GINS

Ark., Marked Tree.—John B. Claunch has plans by G. W. Hines for rebuilding burned plant (lately noted under Jonesboro, Ark.); 20x50 feet; galvanized iron; ordinary construction; cost \$3000; awarded contract to Continental Gin Co., Birmingham, Ala., for \$3000 gin; 25 bales cotton daily capacity; engineer in charge, J. E. Wood.

Miss., Army.—Electric Gin Co. (recently reported incorporated with \$10,000 capital stock) will establish plant; will erect fireproof building; 80x50 feet; cost \$1500; cost of machinery \$2000; daily capacity 40 bales cotton; J. M. May, president; R. L. Betts, secretary and treasurer.

Tex., Brownwood.—Texas Compress Co. incorporated with \$30,000 capital stock by W. J. Neale, J. Z. Miller, Jr., and Brooks Smith.

COTTONSEED-OIL MILLS

Ala., Demopolis.—John C. Webb & Sons contemplate erection of 60-ton cotton-oil mill; to be completed by August 1, 1910. (See "Machinery Wanted.")

Ark., Texarkana.—Farmers' Oil & Fertilizer Co. incorporated with \$10,000 capital stock; R. J. O'Dwyer, president; will establish oil mill.

N. C., Salisbury.—D. L. Arey of Salisbury and 21-23 East Pratt St., Baltimore, Md., will, it is reported, establish cottonseed-oil mill; cost \$50,000.

ELECTRIC-LIGHT AND POWER PLANTS

Fla., Hastings.—Tennessee Cooperage Co. is interested in establishment of electric-light plant.

Fla., St. Petersburg.—E. T. Lewis, H. W. Platt and W. J. Millikin (recently noted to install plant) will erect building; cost \$500; will install two electric plants—one of about 125 lights, another of 1000 lights; gasoline power; direct drive; will open bids about November 10.

Ga., Hawkinsville.—City opened bids for equipment for electric-light plant lately mentioned and awarded contract at \$970 to J. S. Schofield Sons Company, Macon, Ga., for high-pressure boiler developing 150 horsepower; at \$2865 to Wisconsin Engine Co., Corliss, Wis., for Corliss engine with generator direct connected; at \$5112.60 to Westinghouse Electric & Manufacturing Co., Pittsburgh, Pa., for generator, switchboard, arc and tungsten system; estimated total cost of plant, \$15,500.

Ga., Waycross.—City contemplates granting franchise for electric-light plant; A. M. Knight, Mayor.

Ky., Paris.—Paris Electric Light Co. has petitioned City Council for franchise for installing plant to furnish daylight electric power, heat and light.

La., Pineville.—Town Council adopted resolution authorizing Mayor Watkins to appoint committee to investigate advisability of installing system of electric lights.

Md., Thurmont.—Citizens' Electric Light & Power Co. incorporated with \$15,000 capital stock by John R. Rouzer, Morris A. Birely, Martin L. Creager and others to establish plant operated by water-power for supplying electricity for lighting streets.

Mo., Aurora.—City granted franchise to Springfield (Mo.) Gas & Electric Co. to establish electric and gas plant.

Mo., Chillicothe.—City defeated \$150,000 bond issue for electric-light and water-works plant lately mentioned. Address The Mayor.

Mo., Glasgow.—City voted issuance of \$30,000 bonds for purchasing electric-light plant, extending water-works and establishing sewer system; plans are being prepared by Burns & McDonnell, Kansas City, Mo.

Mo., Festus.—City voted issuance of \$15,000 bonds for electric lights; lately mentioned. Address The Mayor.

Mo., St. Louis.—Laclede Gas Light Co., W. K. Bixby, president, contemplates erection of electric plant for supplying office buildings and industrial establishments with light and power.

Okl., Dougherty.—Arbuckle Water-Power-Electric Co. incorporated with \$10,000 capital stock by W. T. Croslen, Chickasha, Okla.; W. F. McCormick and W. J. Williams, Sulphur, Okla., and S. A. Newland, Ardmore, Okla.

Tenn., Chattanooga.—Chattanooga Railway & Light Co. has issued bonds for \$15,000,000, of which \$10,610,000 will be used for general extensions, improvements, etc., to railways, electric plant, transmission lines, etc.; G. E. Miller, superintendent.

Tex., Eagle Pass.—Eagle Pass Industrial League plans organization of company to construct water-power-electric plant; plans purchase of local electric-lighting plant, water-works and ice factory for operation by electricity transmitted from proposed plant and furnishing electricity for various enterprises in Eagle Pass and Porfirio Diaz, across Rio Grande in Mexico.

Tex., Wellington.—Wellington Water, Light & Ice Co. incorporated with \$10,000 capital stock by T. S. Atkinson, G. Ford and W. N. Pearson.

Tex., Terrell.—City will vote November 23 on issuance of \$10,000 bonds for improving electric-light plant and water-works. Address The Mayor.

W. Va., Brooklin.—New Martinsville Electric Light, Heat & Power Co., New Martinsville, W. Va., has petitioned for franchise for construction of electric-light plant at Brooklin.

W. Va., Great Cacapon.—Hydro-Electric Developing Co. (previously reported incorporated with \$100,000 capital stock) has organized; plans water-power-electric plant at Edges Fort, on Great Cacapon River; will build dam of native limestone and cement, with 100-foot head; reservoir will be 11.25 miles long, with area six square miles; develop 3000 horse-power for transmission by electricity; machinery will include four 4000-horse-power vertical turbines, direct connected to vertical type generators wound for high voltage alternating current and long distance transmission; further developments under consideration; specifications, etc., not yet prepared; until engineer is chosen Saml. R. Boyer, secretary, Steelton, Pa., will have charge; Wm. B. Osler of Great Cacapon is president; Morris A. Orndorff, also of Great Cacapon, vice-president; Albert E. Holland, 1944 Harlem Ave., Baltimore, Md., treasurer. Address secretary at Steelton.

W. Va., Fort Spring.—B. F. Mann will build water-power-electric plant to develop 1000 horse-power for transmission by electricity; plans construction of dam 47 feet high, 150 feet at base and 250 feet at top; will have surveys made at once and begin construction next spring.

FLOUR, FEED AND MEAL MILLS

Ark., Arkadelphia.—Arkadelphia Milling Co. plans to rebuild burned plant as reported recently; will erect flour-mill building of brick, concrete and steel, 64x35 feet, and 65 feet high, and install machinery for daily capacity of 400 barrels of flour and 600 barrels cereals; will erect grain elevator 36x30 feet and 70 feet high; will probably award building contracts this week; will want machinery for flour, cereals and elevating grain; J. M. Adams, president. (See "Machinery Wanted.")

Fla., Tampa.—Tampa Feed & Grist Mill organized by J. H. Pratt; to establish mill; meal and grits dried by natural process and milled under French buhr system; capacity, 100 bushels of corn for meal and grits and 10 tons feedstuff daily.

Ga., Elberton.—Ben Tyner interested in organization of company to establish flour mill.

Ky., Kilgore.—J. P. Stroher will establish mill; will operate with gas engine.

Md., Baltimore.—E. Clay Timanus, 322 Falls road, will install new machinery.

N. C., Nashville.—N. C. Warren is promoting establishment of roller mill.

N. C., Wilmington.—Carter & Brice awarded contract to W. J. Spooner, Wilmington, for erection of grist mill; cost \$10,000.

Va., Appalachia.—Appalachia Milling Co. incorporated with \$50,000 capital stock; H. J. Ayers, president; G. T. Bostwick, secretary-treasurer, all of Big Stone Gap, Va.

Va., Petersburg.—Cockade City Mills incorporated with \$50,000 capital stock; E. G. Temple, president; W. R. Long, vice-president; C. F. Collier, treasurer; E. F. Temple, Jr., secretary.

FOUNDRY AND MACHINE PLANTS

Ga., Armuchee.—Plows.—T. M. Manning Plow Manufacturing Co. organized to establish plow plant.

Ky., Louisville.—Machinery.—Atlas Machine Co. increased capital stock from \$25,000 to \$50,000.

Miss., P'layune.—R. J. Williams will rebuild machine shops reported burned.

N. C., Newbern.—Foundry.—Craven Foundry & Machine Co. incorporated with \$100,000 capital stock by W. T. Brinson and others.

Okl., Oklahoma City.—Machines.—Priest Machine Works Co. incorporated with \$6000 capital stock by Charles E. Hoyland, John B. Priest and others.

Tenn., Memphis.—Structural Iron.—Joliet Bridge & Iron Co. of Memphis organized with \$10,000 capital stock by R. C. Morrison, J. A. McCann, George A. Larimer and others; will probably establish plant for manufacturing structural iron; to be branch of Joliet Bridge & Iron Co., Joliet, Ill.

W. Va., Cabell.—Foundry.—Carper Foundry & Machine Co. incorporated with \$25,000 capital stock by T. H. Wickham, I. C. Prince, C. McTaggart, all of Beckley, W. Va., and others; main office, Beckley; plant at Cabell.

GAS AND OIL DEVELOPMENTS

La., Boyce.—Standard Oil Co., 26 Broadway, New York, secured 43 acres of land and will erect \$40,000 pumping relay station.

Okl., Dewey.—Utility Oil & Gas Co. incorporated with \$10,000 capital stock by Fred B. Woodard, B. A. Lewis and C. L. Earl Woodard.

Tex., Fort Worth.—Consumers' Light & Heating Co. (recently noted to construct natural-gas pipe line) has increased capital stock from \$200,000 to \$400,000 and awarded contract to Lone Star Gas Co., Fort Worth, to furnish company with enough natural gas to supply Fort Worth.

Tex., Houston.—The Texas Company has increased capital stock from \$12,000,000 to \$18,000,000; reported as to construct additional oil-pipe line from Oklahoma field to Port Arthur, Tex., and purchase Texas holdings of Waters-Pierce Oil Co.

Tex., San Antonio.—San Antonio Oil Well Drilling Co. incorporated with \$2500 capital stock by Thomas J. Wren, George J. Karsch and Thomas L. Blackmen.

W. Va., Salem.—Kinch Oil & Gas Co. incorporated with \$10,000 capital stock by Luther C. Ash, Samuel P. Ash, H. H. King and others.

W. Va., Charles Town.—City granted franchise to Interstate Natural Gas Co., Charleston, W. Va., to furnish city with natural gas.

ICE AND COLD-STORAGE PLANTS

Ala., Birmingham.—Southern Ice & Coal Co., Eugene Enslen, president, will erect cold-storage plant; three stories; 100x140 feet.

Ga., Vidalia.—City granted franchise to Charles Adams and J. C. May to establish ice plant.

Ky., Mt. Sterling.—David Howell is reported interested in plan to establish cold-storage plant.

La., New Orleans.—Pearl Wight awarded contract to George J. Glover, New Orleans, La., for cold-storage plant for Swift & Co., Chicago, Ill.; three stories and basement; concrete and brick; two-story stable; mill construction; cost \$100,000; plans by Tole-dano & Wogan, New Orleans. (Recently mentioned.)

Miss., Natchez.—C. R. Byrnes is chairman of committee promoting establishment of \$75,000 packing and cold-storage plant.

Mo., Mexico.—Artic Ice & Storage Co. incorporated with \$60,000 capital stock by J. T. Johnson, W. J. Botts, S. J. Buckner and others.

Tenn., Shelbyville.—General Coal & Ice Co. incorporated with \$3100 capital stock by T. H. Myers, J. E. Huffman, T. N. Greer and others.

Tex., Hillsboro.—Hill County Cotton Oil Co., E. Woodall, secretary, will erect 40-ton

ice plant to be in operation next season. (See "Machinery Wanted.")

Tex., Quanah.—Bergman Produce Co., Frank Hook, manager, will increase capital stock to \$30,000; will erect building and install cold-storage plant.

Tex., San Angelo.—Jacob Dold Packing Co., 745 William St., Buffalo, N. Y., will establish cold-storage plant and salesroom; will erect brick building.

Tex., Wellington.—Wellington Water, Light & Ice Co. incorporated by T. S. Atkinson and others.

Va., New Church.—Cansey Lofland, Milton, Del. (recently incorrectly noted as of Milton, Va.), will establish tank type ice plant; capacity 20 tons daily.

IRON AND STEEL PLANTS

Ky., Middlesboro.—Iron Furnaces.—Virginia Iron, Coal & Coke Co. (general offices, Bristol, Tenn.) is progressing with previously announced improvements to two iron furnaces; expending about \$50,000 and will soon blow in.

Md., Sparrows Point.—Ore-handling Equipment.—Maryland Steel Co. will provide extensive improvements for iron ore handling from ships; will construct concrete bulkhead 500 feet long, with approaches dredged to depth for largest vessels; will erect on bulkhead two electric unloaders with hourly capacity of 500 tons each; equipment will include large clamshell buckets, magnet to lift rails weighing 24,000 pounds, etc.; awarded bulkhead contract to Raymond Concrete Pile Co., New York, and unloaders contract to Brown Hoisting Machinery Co., Cleveland, O.; expenditure about \$250,000.

Tex., Jefferson.—Iron Furnace.—Jefferson Iron Co. (recently noted to have blown in furnace with daily capacity of 80 to 100 tons coke iron) has increased capital stock from \$100,000 to \$200,000.

LUMBER-MANUFACTURING PLANTS

Ala., Aliceville.—Aliceville Lumber Co., J. B. Cunningham, president (recently reported to rebuild burned plant), will erect planing mill and sawmill; cost of buildings, \$5000; daily capacity, 25,000 feet of lumber; machinery bids now open; plans by Wm. Shirley. (See "Machinery Wanted.")

Ala., Birmingham.—Farrior Lumber Co. incorporated with \$50,000 capital stock; J. W. Farrior, president; D. H. Henderson, vice-president; A. N. Breakley, secretary-treasurer.

Ala., Fremont.—V. M. Lumber Co. incorporated with \$12,000 capital stock; Claude Brewer, president; W. E. Spink, secretary; will install saw and planing mill machinery; capacity, 20,000 feet of yellow-pine lumber per day; H. B. Bloom, Fremont, engineer in charge; main office, Birmingham, Ala.

Ala., Manistee.—United Lumber Co. incorporated with R. F. Mitchell, Pensacola, Fla., president; M. Lobman, Montgomery, Ala., vice-president; E. J. Buck, Mobile, Ala., secretary-treasurer; have taken over Manistee Mill Co. and will continue operation of mill; capacity, 60,000 feet of lumber daily.

Ala., Reform.—Pickens County Lumber Co. will build mill with one band and 26-inch-saw gang mill; also planer and drykiln for entire capacity; has begun clearing site and has nearly all equipment; will construct 12-mile tramway for steam loggers and three locomotives; construction in charge of F. E. Park, president of Mason Lumber Co., Gadsden, Miss., who can be addressed. (See "Machinery Wanted.")

Ark., Batesville.—Talley Lumber Co. purchased plant of Glenn Lumber Co.

Ark., Fort Smith.—Hensberger-Munro Lumber Co. incorporated with \$20,000 capital stock; R. A. Hensberger, president; William Munro, secretary.

Ark., Jonesboro.—Barton Lumber & Brick Co., P. C. Barton, president and manager, will need only to make repairs to plant recently noted to be rebuilt; repairs to cost within \$5000.

Fla., Dadeville.—Franklin Land Co., Brunswick, Ga., has purchased for \$80,000 12,000 acres of timber lands and will develop.

Fla., Quincy.—A. N. Belcher, Centerville, Ala., will build mill as reported last week; purchased 8000 acres yellow-pine timber in Gadsden and Liberty counties at \$2,900 and will construct 10-mile logging railway early in 1910; exact location of plant not determined, but daily capacity will be 50,000 feet lumber; plant to include band-saw mill, planing mill and drykilns.

Fla., Tampa.—American Mahogany Co., John H. Bissell, representative, Bank Chambers, Detroit, Mich., will build large plant

as reported in August; has not organized or completed plans for buildings, machinery, etc.; now completing negotiations for plant site, transportation facilities, etc. (Previously reported as to erect steel and concrete buildings and install saw and veneer machinery at cost of \$250,000.)

Ga., Macon.—Mathews Lumber Co., E. W. Stetson, president (recently reported incorporated), will deal in heavy timbers, including bridge timbers, car sills, decking, flooring, ceiling, siding, finish, lath and shingles; J. M. Mathews, secretary and manager.

La., Hammond.—McCarroll Lumber Co. incorporated with \$40,000 capital stock; will establish plant; will erect buildings; ordinary construction; sawmill machinery to be installed; daily capacity, 50,000 feet of lumber; James F. McCarroll, president and treasurer; Harry C. Page, vice-president; Arthur T. Gomilla, secretary.

La., Lake Charles.—Independent Naval Stores Co. incorporated with \$300,000 capital stock; H. H. Gordon, president, Bay St. Louis, Miss.; A. Vizard, Jr., vice-president, New Orleans, La.; John H. Long, secretary-treasurer, Bay St. Louis, Miss.

La., Sorrento.—Optemayer Bros. will establish sawmill with capacity of 75,000 to 100,000 feet daily.

Miss., Canton.—Hill-Wales Lumber Co. incorporated with \$10,000 capital stock by M. S. Hill and L. G. Wales.

Miss., Tenmile.—Tenmile Lumber Co., J. R. Pratt, president, awarded contract to Filler & Stowell Company, Milwaukee, Wis., for erection of plant to replace burned structure; capacity, 100,000 feet daily; leased plant at Mill View and will operate in connection with new plant.

Md., Baltimore.—Shields Point Lumber Co. incorporated with \$3000 capital stock by John H. Zouck, 740 Eastern Ave.; Frank H. Zouck, 1613 McHenry St., and Ovington E. Weller.

Okl., McAlester.—New State Lumber Co., C. W. Dawley, president, contemplates erection of sawmill; capital stock, \$100,000, probably to be increased. (See "Woodworking Plants.")

Tenn., Crossville.—A. K. Bolick and F. H. Shaw are interested in development of timber on 4200 acres of land.

Tenn., Gray's Station (not a postoffice).—E. T. Shell, Roan Mountain, Tenn., has purchased and will develop tract of timber land at Gray's Station.

Tenn., Unaka Springs.—Unaka Springs Lumber Co., recently reported incorporated, has purchased and will probably develop 5645 acres of timber land.

Tenn., Memphis.—Sterling Lumber Co. incorporated with \$20,000 capital stock by Will J. Lockwood, T. W. Harsch, J. H. Allen and others.

Tex., Houston.—Southern Pinery organized with \$30,000 capital stock by C. E. Baiton; purchased lumber mill at Pinery and will increase capacity to 35,000 feet of lumber daily; will develop 28,000,000 feet of timber; offices, Klam Building.

Tex., Jasper.—Alex. Gilmer Lumber Co., Remig, Tex., is having plans prepared by N. M. Stryker, Starke, La., for sawmill at or near Jasper; single-band type; capacity 75,000 feet daily.

Tex., Jasper.—Alexander Gilmer Lumber Co. will establish sawmill with capacity of 60,000 to 65,000 feet daily.

Tex., Nacogdoches.—Hayward Lumber Co. will erect double band mill to replace burned plant.

Va., Norfolk.—Surry Lumber Co., Union Trust Bldg., Baltimore, Md., has engaged James B. Scott, 203 Maryland Savings Bank Bldg., Baltimore, as consulting engineer and to prepare plans for Norfolk plant, previously announced; will invite bids on engines, boilers and electrical machinery; will soon announce further details.

Va., Scott County.—Doss Manufacturing Co., Pocahontas, Va., purchased 12,000 acres of stumpage in Scott county and will probably establish lumber plant.

W. Va., Nicholas County.—C. L. Monger Lumber Co. (recently noted to establish double band-saw mill in Nicholas county) should be addressed at Charleston, W. Va.; has capital stock of \$300,000; stockholders include C. L. Monger, Elkhart, Ind., and Mr. Carroll and Mr. Wells of Charleston.

W. Va., Norton.—Carrier Lumber Co. will enlarge plant at Glamorgan.

MINING

Ala., Birmingham.—Iron.—Cleveland-Alabama Mining Co. incorporated with \$30,000 capital stock; George L. Wilkins, president; J. R. Godwin, vice-president and treasurer; I. J. Sandefer, secretary.

Ala., Fort Payne.—Iron, etc.—Fort Payne Fuel & Iron Co. incorporated with capital stock of \$5,000,000 to take over and develop holdings of former Fort Payne company; E. C. Drew, general manager.

Ark., Fort Smith.—Gold, Silver, Copper, etc.—Longhill Mining Co. incorporated with \$200,000 capital stock. L. G. Hill, president; Vincent Miles, secretary.

Ark., Harrison.—Zinc.—U. L. Clark, president of Earl Mining Co., Earl, Ark., is negotiating for 300-foot shaft on Boone County Jack Pot.

Ark., Omaha.—Zinc, Lead, etc.—Myrtle Mining Co. incorporated with \$25,000 capital stock by C. H. Hanaman, Harry B. Smith, A. E. Todd and others.

Ga., Dalton.—Sand.—Rocky Face Silica Sand Co. incorporated with \$100,000 capital stock by F. T. Hardwick, Dalton; J. M. Stephens, Atlanta, Ga.; F. M. Stubbs, Augusta, Ga., and others.

Ga., Graysville.—Lead Ore.—W. F. Hale is interested in development of lead-ore deposits.

Md., Baltimore.—Southern Mining Co. incorporated by Samuel S. Kann, 525 North Eutaw St.; Morris Hofheimer, 1929 Linden Ave.; James M. Pressgraves, 32 Central Savings Bank Bldg.

Miss., Raleigh.—Mississippi Mineral Exploration & Development Co. incorporated with \$30,000 capital stock by O. S. Cantwell, J. M. Martin, both of Raleigh; A. H. Longino, Jackson, Miss., and others.

Mo., Joplin.—Lead and Zinc.—Missouri Zinc & Lead Mills Co. incorporated with \$50,000 capital stock by J. A. Webb, Jesse French, both of St. Louis, Mo.; Thomas Douglas, Joplin, and others.

N. C., Greensboro.—Continental Development Co. incorporated with \$100,000 capital stock; M. L. Jones, president; John W. Lambeth, vice-president; Zed Griffith, secretary-treasurer; E. W. Lyon, consulting engineer and assistant manager; will develop mines.

MISCELLANEOUS CONSTRUCTION WORK

Ala., Montgomery.—Wharf.—City awarded contract to Huger Bros., Montgomery, for construction of wharf lately mentioned; estimated cost, \$10,000.

Ark., Paragould.—Drainage Canal.—Lawrence and Green County Commissioners contemplate voting on issuance of bonds for construction of drainage canal down channel of Cache River; to prevent overflows and to drain thousands of acres of river bottom land. Address Lawrence or Greene County Commissioners.

Ark., Stuttgart.—Canal.—W. H. Milliken will construct canal to bayou Meto and establish pumping station with 15,000 gallons capacity per minute to irrigate rice fields in Arkansas county.

La., New Orleans.—Dock.—Board of Port Commissioners commissioned Engineer Bell to prepare plans for construction of dock 1500 feet long below Clouet street.

La., Point a la Hache.—Levee.—Board of Commissioners for Plaquemine Parish East Bank Levee District will repair back protection levee lately damaged by storm; estimated cost, \$12,000.

La., Port Allen.—Levees.—Board of State Engineers, 402 Cotton Exchange Bldg., New Orleans, will open proposals November 3 for construction of Highland levee; 90,000 cubic yards; blank forms, etc., furnished. (For other details see "Machinery Wanted.")

Okl., Oklahoma City.—Drainage Canal.—Oklahoma County Commissioners awarded contract at 3.47 cents per cubic yard to Forstell & Flynn, St. Paul, Minn., for constructing drainage canal along Deep Fork distance of 13½ miles.

S. C., Charleston.—Pier.—Charleston Compress & Wharf Co. will enlarge capacity of Pier No. 4 190x40 feet; will be used by Baltimore & Carolina Steamship Co.

S. C., Spartanburg.—Lake.—J. W. Alexander and other capitalists have organized company, have purchased Stuckey property and will dam Fairforest Creek, constructing lake covering 25 or 30 acres.

Tex., Houston.—Drainage.—Commissioners' Court approved report of T. J. Mahaffey, County Engineer, and will vote December 6 on issuance of \$235,000 bonds for drainage system to south, east and west of Houston.

Tex., Liberty.—Drainage.—J. E. Berry, chairman Drainage Commission, will receive bids until December 1 for excavating ditches and building bridges and culverts on Old River Drainage District; excavating approximately 710,000 cubic yards of earth. (See "Machinery Wanted.")

Tex., San Juan—Gravity Irrigation.—Gravity Irrigation Co. (lately reported incorporated) is name of temporary corporation of Rio Grande Irrigation Co. to complete survey and acquire right of way preparatory for issuance of bonds for building irrigation canal; bids for construction will be opened in about four months. (Details previously reported.)

Va., Lynchburg—Tunnel.—Southern Railway, D. W. Lum, chief engineer, Washington, D. C., will restore about 442 feet of tunnel previously noted burned.

MISCELLANEOUS ENTERPRISES

Ala., Gadsden—Land Improvement.—C. C. Baxter, Birmingham, Ala., and associates purchased 324 acres of land and are reported as considering development as residential section. (See "Miscellaneous Manufacturing Plants.")

Ala., Mobile—Furniture.—Martin Blake Furniture Co. incorporated with \$7500 capital stock; Emma J. Martin, president; Cynthia E. Blake, treasurer; Jennie C. Martin, secretary.

Ark., Earle—Land Improvement.—Rhodes Realty Co. incorporated with \$25,000 capital stock by John F. Rhodes, A. B. Shafer and F. K. Lashbrook.

Ark., Huntington—Publishing.—Herald Publishing Co. (recently reported incorporated with \$8000 capital stock) will erect building 25x100 feet; ordinary construction; cost \$2000; will install presses and gas engine; date of opening machinery bids not yet fixed; cost of plant \$6500; D. Hogan, president; John W. Jasper, vice-president; F. Hogan, secretary.

Ark., Stuttgart—Rice Development.—Barton Plantation Co. (recently reported incorporated with \$10,000 capital stock) has organized with W. W. Barton, Bartonsville, Ill., president; Chas. H. Odell, Stuttgart, vice president; Arnold Kleiner, Stuttgart, secretary; J. M. Barton, Peoria, Ill., treasurer; has 2700 acres of timber land; will clear and plant 300 acres in rice this year, increasing acreage from 300 to 400 each year; will expend about \$50,000 in development and improvements.

Ark., Texarkana—Farm.—Pearl Farm (recently reported incorporated with \$20,000 capital stock), E. W. Frost, president, will not make any improvements at present; contemplates expending several thousand dollars on tile drainage; plans indefinite.

D. C., Washington—Printing.—Model Printing Co., E. R. Marden, president, 507 E St. N. W., has plans by P. C. Jones for erection of printing plant recently mentioned; three stories and basement; 34x125 feet; mill construction; cost of building and lot, \$35,000; cost of machinery (mainly purchased), \$15,000; engineer in charge, H. V. Sandford, Washington. (See "Machinery Wanted.")

Ga., Atlanta—Land Improvement.—Chamlee Realty & Improvement Co. incorporated with \$50,000 capital stock by W. M. Hutchinson, W. L. Hutchinson, H. G. Dodd and J. M. Daniel.

Ga., Atlanta—Land Improvement.—Dillin-Williams-Morris Company incorporated with \$10,000 capital stock by H. W. Dillin, E. Morris and E. P. Williams.

Ga., Macon—Land Improvement.—Rutherford Investment Co. incorporated with \$30,000 capital stock by Herbert F. Haley, H. Horne, J. T. Nyhan and others.

Ga., Savannah—Cemetery.—City appropriated \$15,000 for improvements at Bonaventure Cemetery, including paving principal streets with Augusta gravel, to grub new portion and possibly install walks. Address The Mayor.

Ga., Savannah—Land Improvement.—John M. Cooper Land Co. incorporated with \$10,800 capital stock by Thomas L. Wyly, F. W. Clark, G. B. Clark and H. W. Butler.

Ky., Louisville—Land Improvement.—Beuschel Realty Co. incorporated with \$16,000 capital stock by Charles Fegenbush, John Beuschel, Jr., E. J. Fegenbush and W. F. Fegenbush.

Ky., Louisville—Masonry.—Freibert Masonry Co. incorporated by John Freibert, Lee Freibert, William Bush and Christ Wolschlegel.

La., New Orleans—Machinery and Supplies.—Superior Machinery & Supply Co., 417 Baronne St., organized as selling agent; P. J. Shonolin, Springfield, O., president; H. L. Church, vice-president and general manager; Clyde Bishop, secretary-treasurer.

La., New Orleans—Plumbing.—Payers' Mutual Plumbing Co. incorporated with \$100,000 capital stock; Matthew Goslinsky, president; Donald H. Mitchell, secretary-treasurer; Peter Welas, vice-president.

La., New Orleans—Contracting.—W. L. Ste-

vens Company incorporated with \$5000; W. L. Stevens, president; W. Miles Pearce, secretary-treasurer.

La., New Orleans—Molasses, etc.—United Molasses Co. of Louisiana incorporated with \$100,000 capital stock by Raymond B. Scudder and others; will handle sugar molasses direct from plantation; contemplates establishment of canning plant later.

Md., Baltimore—Land Improvement.—Sterling Realty Co. incorporated with \$5000 capital stock by William F. Schul, Godfrey L. Fisher, Hamilton, Md., and Nicholas Fisher, 13 South Ann St.

Md., Baltimore—Land Improvement.—Kenmar Realty Co. incorporated with \$5000 capital stock by Frederick R. Peddicord, Earle A. Kraft and Alfred C. H. Smith, all of 231 Courtland St.

Md., Baltimore—Greases, Oils, etc.—Martin & White Company incorporated with \$10,000 capital stock by J. Allen Moore, 2814 North Calvert St.; Charles H. Whitby, Jr., 825 Hamilton Ter., and others.

Md., Baltimore—Engineers.—Martin Furnace Co. incorporated with \$10,000 capital stock by Charles B. Roberts, Jr., 703 St. Paul St.; Thomas C. Brian, 1229 McCulloh St., and James V. Martin, 904 Edmondson Ave.

Md., Baltimore—Garage.—Dixon T. Walker Automobile Co., 1917 North Charles St., has plans by Jacob F. Gerwig, 210 East Lexington St., Baltimore, for garage at Charles and 20th streets (recently mentioned); one story; 175x80 feet; contractors estimating include Fred Decker & Son, 1209 East Biddle St.; Monmonier & Sorrell, 308 Laurens St.; John Cowan, 106 West Madison St.; J. Elmer Stanfield, 109-111 Clay St., and R. B. Mason, 324 West Biddle St., all of Baltimore.

Md., Baltimore—Distributing.—Cecil Distributing Co. incorporated with \$50,000 capital stock by Joseph Sobelman, 2514 East Baltimore St.; Henry Gilligan, Calvert Bldg., and John H. Krause, 1715 Westwood Ave., all of Baltimore, Md.

Md., Baltimore—Express.—Edmondson Avenue Express Co. incorporated by Charlotte C. Sweitzer, Charles E. Gross and Alexander L. Seth, 100 East Lexington St.

Md., Baltimore—Land Improvement.—Windors Hills Company incorporated with \$18,000 capital stock by Raymond W. Lamberger, Louis E. Goodman, 1309 Madison Ave.; Henry W. Williams, Fidelity Bldg.

Md., Baltimore—Stone.—Universal Stone Co. incorporated with \$10,000 capital stock by Granville Smith, 11 West Preston St.; John C. Peat, 711 East Chase St., and John J. Hurst, 1201 Calvert Bldg.

Md., Baltimore—Steam Laundry.—Acme Laundry incorporated with \$10,000 capital stock by Clifford A. Flaunt, 925 Linden Ave.; Campbell F. Flaunt, 628 Oak Ave., and Matthias C. Angelmier, 118 Law Bldg.

Miss., Vicksburg—Land Improvement.—Suburban Realty Co. incorporated with \$7500 capital stock by John Curphey, M. D. Landeau and B. D. Fields.

Mo., Kansas City—Garage.—S. H. Velie will erect garage; two stories; brick; 50x150 feet; cost \$15,000.

Mo., Kansas City—Plantation.—Everglade Plantation Co. incorporated with \$8000 capital stock by Edward S. Van Amis, P. M. Perkins and S. J. Mattocks.

Mo., St. Louis—Construction.—Another Building Co. incorporated with \$50,000 capital stock by Oscar E. Buder, H. M. Mateson and R. J. Schwartz.

N. C., Falcon—Publishing.—Falcon Publishing Co. incorporated with \$10,000 capital stock by J. A. Culbreth, J. H. King and others.

N. C., Lexington—Land Improvement.—Park Land Co. incorporated with \$50,000 capital stock by H. B. Varner, E. E. Williams and others.

N. C., Winston-Salem—Mercantile.—J. I. Newman Company incorporated with \$25,000 capital stock by J. D. Newman, R. H. Woodson, Jr., and H. B. Pulliam.

Okla., Ardmore—Land Improvement.—Fraleley Real Estate & Investment Co. incorporated with \$25,000 capital stock by Charles E. Fraley, Henry A. Kembel and Errett Dunlop.

Okla., Daugherty—Townsite.—Arbuckle Townsite Co. incorporated with \$10,000 capital stock by W. F. McCormick, J. T. McCormick, both of Daugherty; W. J. Williams, Sulphur, Okla., and others.

Okla., Holdenville—Grain and Produce.—Holdenville Grain & Produce Co. incorporated with \$5000 capital stock by R. M. McFarlin, J. A. Chapman and W. M. Taylor.

Okla., Oklahoma City—Land Improvement.—Osage Land & Loan Co. incorporated with \$25,000 capital stock by James E. Dunn, John E. Van Cleve and J. S. Wakefield.

Okla., Oklahoma City—Land Improvement.—Storm Realty Co. incorporated with \$50,000 capital stock by W. W. Storm, Edith Storm, both of Oklahoma City, and Albert B. Storm, Fort Towson, Okla.

S. C., Gaffney—Garage.—Z. A. Robertson had plans by and awarded contract to Builders' Supply Co., Gaffney, for erection of garage recently noted; two stories; brick; first floor cement; 56x35 feet; electric lighting; hand-power elevator.

Tenn., Chattanooga—Motor Cars.—Tennessee Motor Car Co. incorporated with \$10,000 capital stock by F. L. Riggs, Earl McKenney, S. M. Chambliss and others.

Tenn., Clarksville—Land Improvement.—Washington Improvement Co. incorporated with \$5000 capital stock by Nace Dixon, C. A. Kelly, N. S. Dabney and others.

Tenn., Knoxville—Garage.—East Tennessee Packing Co. is having plans prepared by R. Graf, Knoxville, for garage; mill construction; two stories; plate-glass fronts; concrete ground floors; electric elevator. This is garage recently noted to be erected for M. L. Wolf.

Tenn., Memphis—Mercantile.—Walker & Rooney Company incorporated with \$10,000 capital stock by J. T. Walker, J. C. Rooney, E. L. McCorkle and others.

Tenn., Nashville—Garage.—Howard Cregor & Co. are planning erection of garage.

Tenn., Pulaski—Automobiles.—Pulaski Automobile Co. incorporated with \$2500 capital stock by T. M. Booth, T. Fagan Booth, C. C. West and others.

Tex., Austin—Automobiles.—Youngblood Automobile Co. incorporated by D. F. Youngblood, C. H. Kellam and J. A. Youngblood.

Tex., Dallas—Townsite.—Trinity Townsite Co. incorporated with \$25,000 capital stock by Ben R. Cain, J. J. Jermyn, W. Frank Knox and others.

Tex., Houston—Publishing.—Texas Magazine Publishing Co. incorporated with \$10,000 capital stock by H. N. Tinker, Jesse L. Wortham, P. S. Durham and others.

Tex., Marlin—Publishing.—Patriot Publishing Co. incorporated with \$3500 capital stock by B. T. Goodwin, C. T. Curry and R. A. Fitzgerald.

Tex., Mont Belvieu—Transportation.—Gulf Coast Transportation Co. incorporated with \$12,000 capital stock by George W. Collier, J. B. Spurlock, W. D. Wing and others.

Tex., San Antonio—Well Construction.—San Antonio Well Construction Co. incorporated with \$2500 capital stock by Thomas J. Wren, George J. Karsch and Thomas L. Blackmen.

Tex., San Antonio—Land Development.—R. T. Pruitt and Ed Lamm purchased tract containing 11½ acres and will develop as residential section; will subdivide into 60 lots, erect number of dwellings and make other improvements.

Tex., Stockdale—Mercantile.—Mitchell Mercantile Co. incorporated with \$20,000 capital stock by W. H. Mitchell, L. B. Knox, B. M. Covington and Merrill W. Smith.

Va., Christiansburg—Transfer.—Rapid Transfer Co. incorporated with \$25,000 capital stock; C. R. Calhoun, president; J. B. Banes, secretary-treasurer.

Va., Lynchburg—Books, Stationery, etc.—Brown-Morrison Company incorporated with \$50,000 capital stock; Martin L. Brown, president; J. J. Morrison, secretary-treasurer.

Va., Norfolk—Mercantile.—Goodlow Corporation incorporated with \$50,000 capital stock; W. B. Black, president; W. A. Coleman, vice-president; P. Barrett, secretary-treasurer.

Va., Norfolk—Land Improvement.—Industrial Realty Corporation incorporated with \$15,000 capital stock; James L. Belote, president; W. P. Cousins, vice-president; B. McNally, secretary-treasurer.

Va., Norfolk—Land Improvement.—J. H. Cofer and W. W. Robertson purchased 95 acres at Money Point and will develop as residential section.

Va., Richmond—Plumbing, etc.—Feild Plumbing & Heating Corporation incorporated with \$10,000 capital stock; B. P. Feild, president; H. S. Morrison, vice-president; N. T. Cooke, treasurer; F. B. Page, secretary.

Va., Richmond—Land Improvement.—Virginia Capital Realty Co. incorporated with \$25,000 capital stock; C. Ridgeway Moore, president; W. T. Yarbrough, vice-president; James Peebles, secretary-treasurer.

Va., Suffolk—Peanuts.—John King Peanut Co. incorporated with \$50,000 capital stock; John King, president; Thomas Sheehan, vice-president; C. E. King, secretary-treasurer.

Va., Tiptop—Mercantile.—Dillon & Co. incorporated with \$15,000 capital stock; George

Shafer, president; T. R. Smoot, vice-president; B. W. Dillon, secretary-treasurer.

W. Va., Fairmont—Orchard.—Hampshire Orchard Co. increased capital stock from \$40,000 to \$50,000 and will extend, improve and enlarge its holdings.

W. Va., Morgantown—Plumbing.—Herd Plumbing Co., previously reported incorporated with \$5000 capital stock, will conduct plumbing and general contracting; Frank Herd, president; E. Herd, secretary and manager. (See "Machinery Wanted.")

W. Va., Washington—Building.—Berwyn Heights Building & Improvement Co. incorporated with \$25,000 capital stock by Fred H. Benson, Charles D. Eldridge, William Poulney and others.

W. Va., Wellsburg—Aerial Roads.—American Automobile Aerial Road Co. incorporated with \$250,000 capital stock by Asa G. Neville, F. A. Chapman, Asa A. Neville and others; has purchased three patents of Asa G. Neville for Automobile Scenic Railway Co.

MISCELLANEOUS MANUFACTURING PLANTS

Ala., Gadsden.—C. C. Baxter and associates of Birmingham, Ala., purchased Fruit-hurst Addition, containing 324 acres of land; are reported as contemplating establishment of manufacturing plant or to develop as residential section.

Ala., Mobile—Monumental Work.—Sims-Maddox Stone Co., T. W. Sims, president, 509 Van Antwerp Bldg. (recently reported incorporated with \$25,000 capital stock), is reorganization of Maddox-Eastburn Stone Co.; has enlarged plant; no further machinery needed.

Fla., Jacksonville—Turpentine.—J. G. Gardner organized company with \$25,000 capital stock to establish plant for extracting turpentine from sawdust.

Fla., Tampa—Cigars.—Mrs. F. Haya awarded contract to W. V. Cole, Tampa, for erection of three-story-and-basement cigar factory; cost \$35,000.

Ga., Atlanta—Lamps.—Allen Lamp Co., temporary office, 217 National Bank Bldg. (recently reported incorporated by E. E. Allen and others), has not yet elected officers; will manufacture lamps.

Ga., Cartersville—Bakery.—Stanford Bros. will erect bakery to replace burned plant.

Ga., Columbus—Bottling.—Nova-Kola Bottling Co. incorporated with \$30,000 capital stock by H. Grader, C. W. Moye, J. W. McDaniel and Henry Gann.

Ga., Ocala—Paper.—Southern Cotton Stalk Pulp & Paper Co., W. E. McMillen, president, Candler Bldg., Atlanta, Ga., has secured Ensign Oskamp sawmill site with artesian well and storage building, and will equip for manufacturing paper from cotton stalks; capacity, 20 tons paper daily; cost from \$75,000 to \$100,000.

Ga., Savannah—Fertilizer.—Southern Fertilizer & Chemical Co., W. G. Barnwell, president, awarded contract to Pratt Engineering & Machine Co., Atlanta, for erection of proposed fertilizer factory; capacity, 30,000 to 35,000 tons of fertilizer per season; will install gas condensers; cost \$50,000.

Ga., Savannah—Mill, Railroad and Steamboat Supplies.—Georgia Supply Co. has increased capital stock from \$100,000 to \$500,000.

Ky., Louisville.—Louisville Point Lumber Co. will establish planing mill.

Ky., Middlesboro—Brooms.—Middlesboro Broom Factory organized by Will How and Harry How.

La., Abbeville—Sugar.—Damas Moresi, Jeanerette, La., proposes erection of sugar factory with capacity of 600 tons daily.

La., New Orleans—Rice.—Rickert's Rice Mills will remove and enlarge plant; will erect four-story brick building; architect in charge, D. J. Hayes Company, Houston, Tex.; capacity will be 2400 barrels rice in 24 hours.

La., New Orleans—Rice Mills.—Rickert Rice Mill Co. awarded contract to D. J. Hayes, Houston, for erection of proposed rice mill; capacity 4000 barrels per 12 hours; reinforced concrete construction.

La., New Orleans—Chemicals.—Tidewater Chemical Co. incorporated with \$5000 capital stock.

La., Shreveport—Glass Plant.—Hazel-Atlas Glass Co., Wheeling, W. Va., will not establish plant at Shreveport. (Recently incorrectly reported.)

Mo., Aurora—Gas Plant.—City granted franchise to Springfield (Mo.) Gas & Electric Co. to install gas and electric plant.

Md., Baltimore—Distilling.—James Joseph Maryland Distilling Co. incorporated by Felix Bluthenthal, David Dickson, both of

301-307 East Lombard St., and James Joseph. Md., Baltimore—Gelatines.—Gelatine Product Co. incorporated by Theodore Diener, 217 East Baltimore St.; Herbert L. Dreifus, 1114 West Mulrett Ave north, and Henry C. Diener, 1310 Light St.

Md., Baltimore—Mechanical Devices.—Chesapeake Addressing Co. incorporated with \$10,000 capital stock by Jack Q. H. Smith, Jr., 609 Keyser Bldg.; Addison E. Mulliken and Roland R. Marchant, both of 363-369 Calvert Bldg.

Md., Baltimore—Fertilizer.—United States Fertilizer Co., Alfred J. Carr, president, Law Bldg. (recently reported incorporated), purchased two and a half acres of land at Curtis Bay, and will begin construction of proposed fertilizer factory in about 30 days.

Md., Baltimore—Safety Gates.—Read-Menchine Safety Gate Co., 315 North St., incorporated with \$5000 capital stock; Elias W. Read, president; Wm. G. Menchine, secretary-treasurer; will continue operation of plant formerly operated by Mr. Read and will manufacture elevator safety gates, fire-doors, fire-shutters, etc.

Miss., Meridian—Ice Cream.—R. W. Rogers, Jackson, Tenn., contemplates establishment of ice-cream plant.

Mo., Kansas City—Lifesaving Belt, etc.—Combination Spanner & Lifesaving Belt Co. incorporated by Joseph and Mary O. Sullivan and W. Culbertson.

Mo., Kansas City—Automobiles.—Wm. A. Salter Motor Co. will erect plant for manufacturing automobiles; 50x140 feet; will equip with lathes, millers, shapers, etc., to cost \$5000.

Mo., St. Louis—Clothing.—Corinth Woolen Mills, 1128 Washington Ave. (mentioned last week as leasing larger quarters), will operate additional factory for men's clothing; has not purchased all machinery.

Mo., St. Louis—Elevator Threshold.—Illuminated Elevator Threshold Co. incorporated with \$250,000 capital stock by Charles B. Ricketts, Wm. T. Eddins and George W. Lee.

Mo., St. Louis—Friction Trucks.—Heverling-Herkert Manufacturing Co. incorporated with \$4000 capital stock by J. B. Heverling, Fred Herkert, Edwards Whitaker and others.

Mo., St. Louis—Bottling.—Bell Extract & Bottling Co. incorporated with \$20,000 capital stock by William G. Knost, Louis Straub and J. H. Fahlen.

N. C., Charlotte—Drugs.—Moody Drug Co. incorporated with \$5000 capital stock by Charles P., Robert F. and W. F. Moody.

N. C., Cronly—Guano.—Eclipse Guano Co. incorporated with \$25,000 capital stock by G. Herbert of Cronly, William Gilchrist and J. G. McRoemick, both of Wilmington, N. C.

N. C., Marion—Creamery.—Gibbs & Simmons of Elgin Creamery Co., Elgin, Ill., contemplate establishment of creamery, to cost \$9000.

N. C., Winston-Salem—Bakery.—S. A. Pearson will install machinery for manufacturing cakes, crackers and bread.

Okla., Frederick—Oil Burners.—Stafford Oil Burner Co. incorporated with \$14,000 capital stock by F. D. Stafford, J. B. Osborne, Jr., P. Mounts and others.

Okla., Geary—Creamery.—Geary Creamery Co. incorporated with \$5000 capital stock by L. A. Homes, George S. Peckham, R. S. Snedley and others.

Tenn., Springfield—Drugs.—Shannon Drug Co. incorporated with \$15,000 capital stock by J. D. Shannon, W. F. Shannon, J. H. Gill and others.

Tenn., Union City—Drugs.—Red Cross Drug Co. incorporated with \$10,000 capital stock by H. M. Oliver, C. W. Miles, Jr., J. R. George and others.

Tex., Abilene—Gas.—Abilene Gas, Light, Fuel & Power Co. increased capital stock from \$50,000 to \$100,000.

Tex., Amarillo—Manufacturing.—Star Manufacturing Co. incorporated by Charles L. Green, James T. Green and C. A. Harle.

Tex., Dallas—Airships.—Keller Monoplane Airship Co., James M. Keller, president, Oakland, Cal., is considering Dallas as location for proposed plant to manufacture airships invented by Mr. Keller.

Tex., Houston—Sanitary Supplies.—Sanitary Supply Co. incorporated with \$5000 capital stock by Thomas Francis, W. B. Brush and M. A. Jones.

Tex., Tyler—Creamery, etc.—Tyler Creamery Co. (recently reported incorporated with \$4000 capital stock) will continue to manufacture butter and ice-cream; S. H. Cox, president; J. P. Broughton, secretary and treasurer.

Va., Norfolk—Putty.—Nadeau Kaolin Putty Corporation incorporated with \$250,000 capital stock; Theo. Nadeau, president, Start-

ford, Va.; Richard Neddo, vice-president; George B. Crow, secretary-treasurer, both of Norfolk; will erect four-story structure, to cost \$300,000, and will equip for manufacturing putty.

Va., Norfolk—Tailoring.—Norfolk Ladies' Tailoring Co. incorporated with \$30,000 capital stock; J. C. Curling, president; G. W. Curling, vice-president; J. B. Davis, secretary-treasurer.

Va., Roanoke—Tin Cans, Crates, etc.—Virginia-Tennessee Can Co. incorporated with \$3000 capital stock; O. C. Huffman, president; J. C. Paxton, vice-president; H. A. Latane, secretary-treasurer.

Va., Suffolk—Peanuts.—Suffolk Peanut Co. has about \$20,000 worth of machinery under construction; will install in building just completed; machinery planned and built by C. F. Neims, 900 Washington St., Portsmouth, Va.

W. Va., Fairmont—Bottles.—Owens Bottle Machine Co., Toledo, Ohio, will establish plant for manufacturing bottles; plans call for rectangular-shaped buildings, 366x1500 feet, to cover 10 acres; capacity, 300,000 to 400,000 gross annually.

W. Va., Martinsburg—Shoes.—Heiser Shoe Co. will probably be name of company being organized with \$10,000 capital stock by H. L. Alexander, Henry J. Selbert, Charles J. Spaulding and others, to establish shoe factory; has option on building.

W. Va., Parkersburg—Manufacturing.—People's Co-operative Co. incorporated with \$50,000 capital stock by William Mantz, J. H. Ruttencutter, James A. Watson and others; will engage in miscellaneous manufacturing.

W. Va., Parkersburg—Glass.—G. A. Kramer is promoting establishment of glass plant.

RAILWAY SHOPS, TERMINALS, ROUNDHOUSES, ETC.

N. C., Rocky Mount—Atlantic Coast Line, E. B. Pleasant, chief engineer, Wilmington, N. C., will erect car shed and car repair shop.

Okla., Altus—Altus, Roswell & El Reno Railroad, Edward Kennedy, president, will erect roundhouse of 15 stalls and other facilities.

W. Va., Wheeling—Wheeling Traction Co. contemplates erection of additional shop buildings.

ROAD AND STREET IMPROVEMENTS

Ala., Ensley.—City Council authorized City Engineer to advertise for bids for paving Avenue E from 22d to 23d street and from 16th to 13th street and 19th street from Avenue I to Avery street.

Ala., Ensley.—Committee on Public Improvements recommends that Mullarky Construction Co., Birmingham, Ala., be awarded contract at \$16,139 for additional sidewalk paving.

Ala., Huntsville.—City approved ordinance for sidewalks and street improvements on Eastis, Clinton and Church streets. Address The Mayor.

Ark., Cotton Plant.—City contemplates paving principal streets. Address The Mayor.

Ark., Little Rock.—Schlenker Land Co. awarded contract to P. H. Carrigan, Little Rock, for construction of road through Schlenker colony; estimated cost, \$4000.

Fla., Palm Beach.—Palm Beach county will vote in December on issuance of \$300,000 road bonds. Date of election changed from October 19. Address Palm Beach County Commissioners.

Fla., St. Augustine.—City will expend \$10,000 for pavements and repairing streets. Address The Mayor.

Ga., Atlanta.—Street committee awarded contract at \$2.44 9-10 per square yard to Thornton & Mayson, Atlanta, for paving of Marietta street from Peachtree to Spring with wood block.

Ky., Louisville.—Board of Public Works awarded contract at \$12,003 to Henry Dickel Company, 1048 Garden St., Louisville, for paving portion of Preston street with granite blocks.

Ky., Newport.—City will vote November 2 on issuance of \$100,000 bonds for road and street improvements. Address The Mayor.

La., Baton Rouge.—Board of Public Works awarded contract to Southern Bitulithic Co., Nashville, Tenn., for repaving of Main street, St. Phillips, St. Charles and North boulevard and repair of 3d street; total of 28,000 square yards. (Lately mentioned.)

La., Jennings.—De Jersey & Barard, Minden, La., are lowest bidders for construction of eight miles of concrete sidewalk and curbing.

La., Lake Providence.—City will open bids November 15 for paving two miles of sidewalks. Address The Mayor.

Md., Denton.—Caroline County Commissioners opened bids October 25 for constructing 1.44 miles of road between Greensboro and Boyce Mill.

Miss., Vicksburg.—J. J. Hayes, Mayor, will receive bids until November 1 for paving North 1st street, between Grove and Clay streets, with vitrified brick. (See "Machinery Wanted.")

N. C., Lenoir.—Lenoir and Blowing Rock Turnpike Co. will commence survey on macadam road from Lenoir to Blowing Rock; 25 miles road; cost about \$125,000; after first 10 miles are surveyed bids will be asked and contracts let; R. L. Gwyn, Lenoir, secretary-treasurer; C. M. Miller, Salisbury, N. C., engineer in charge. (Mentioned in September.)

N. C., Nashville.—Nash county voted issuance of \$20,000 bonds for road improvements lately mentioned. Address Nash County Commissioners.

N. C., Reidsville.—City selected F. W. Myers, Greensboro, N. C., as designing and consulting engineer for paving, water-works and sewer improvements. (See "Water-works.")

Okla., Madill.—City voted issuance of \$2500 bonds for street improvements. Address The Mayor.

Okla., Blackwell.—City has voted issuance of \$2500 bonds for street improvements lately mentioned. Address The Mayor.

Okla., Tulsa.—Tulsa county voted issuance of \$100,000 bonds for roads; lately mentioned. Address Tulsa County Commissioners.

Tenn., Humboldt.—City has voted issuance of \$30,000 bonds for road and street improvements lately mentioned. Address The Mayor.

Tex., Carrizo Springs.—Dimmitt county will expend \$30,000 (amount of bond issue previously noted) in construction of roads and bridges recently mentioned; contract noted awarded to Clift & Andrews Company, Carrizo Springs, for road from Carrizo Springs to Asherton; includes grading of 8 1/4 miles 18-foot roadbed, amounting to about 18,000 cubic yards, at 15 cents per cubic yard. County will also build road from Asherton to Bermuda, with bridges across Nueces River and Carrizo Creek; Ottumwa (Iowa) Bridge Co., E. P. Alsberry & Son, agents, Houston, Tex., has contracts for the bridges named; road will be built from Carrizo Springs to Crystal City, for which estimates are not completed; county will coat one-mile sand-bed road with clay mixture, and contemplates treating roads with oil; J. Ray Brown, engineer in charge.

Tex., Dallas.—J. B. Winslett, City Secretary, will receive bids until November 5 for paving Highland avenue and Cedar Springs avenue from northwest line of McKinney avenue, on Highland street, to Cedar Springs avenue, along Cedar Springs avenue to Argyle street. (See "Machinery, etc., Wanted.")

Tex., Granbury.—Hood county will vote November 20 on issuance of \$25,000 bonds for road improvements in District No. 1. Address Hood County Commissioners.

Tex., Houston.—City has specifications for paving portions of Dallas street, Washington avenue, Main street and San Jacinto street, and will soon award contract. Address The Mayor.

Va., Fredericksburg.—Stafford county awarded contract to L. R. Colbert, Massaponex, Va., for constructing gravel road from Falmouth up Warrenton road, 1 1/2 miles.

Va., Fredericksburg.—Board of Supervisors of Lancaster county will construct macadamized road from Kilmarnock, on Whitestone road, to a point near Camp and Carter's Mill.

Va., Manchester.—D. L. La Prade, City Engineer, opened bids until October 25 for concrete curbing, guttering and flat sidewalk paving. (See "Machinery, etc., Wanted.")

Va., Norfolk.—Board of Control awarded contract at 49 cents per square yard for paving Chapel street with Belgian blocks to L. Lawson, Norfolk.

Va., Waynesboro.—H. M. Magle, secretary Board of Trade, First National Bank Bldg., asks bids on road machinery for construction of proposed 10 miles macadam road from Waynesboro, over Blue Ridge Mountains, to point east of Charlottesville, Va. This road to be constructed jointly by Albemarle, Nelson and Augusta counties, each contributing \$33,000; Virginia Highway Commission, Richmond, made surveys and specifications, and will superintend construction; preliminary bids in July were too high, and it is now proposed to organize private com-

pany; Mr. Magle is secretary and should be addressed. (See "Machinery Wanted.")

SEWER CONSTRUCTION

Ark., Camden.—Fourth Improvement District Commissioners awarded contract at \$5539 to Pouncey Paving & Construction Co., Helena, Ark., for constructing sewer.

Ky., Georgetown.—City will vote November 2 on issuance of \$5000 storm-sewer bonds. Address The Mayor.

La., Lafayette.—City Council is considering proposition of West Construction Co. to install sewerage system; estimated cost, \$200,000.

La., Lake Charles.—Sewerage Board commissioned Walter G. Kirkpatrick, Jackson, Miss., to prepare plans and specifications and estimates of cost for sewerage system. (Previously mentioned.)

Miss., Clarksdale.—City engaged Walter S. Bobo of Clarksdale as engineer to prepare plans for proposed sewers and water-works for Oakhurst addition.

Mo., Glasgow.—City voted issuance of \$30,000 bonds for sewer construction, extension of water-works and purchasing electric-light plant. Address The Mayor.

Mo., Glasgow.—City voted issuance of \$30,000 bonds for establishing sewer system, etc.; plans are being prepared by Burns & McDonnell, Kansas City, Mo.

N. C., Reidsville.—City selected F. W. Myers, Greensboro, N. C., as designing and consulting engineer for construction of 13 miles of pipe sewers, disposal plant, etc. (See "Water-works.")

N. C., South Biltmore, P. O. Biltmore.—City has issued \$3000 bonds for sewer system and water-works. Address The Mayor.

Okla., Madill.—City voted issuance of \$30,000 bonds for sewer construction. Address The Mayor.

Okla., Oklahoma City.—Bob Parman, City Clerk, will receive bids until November 8 for construction of Broadway storm sewer from intersection of 16th street and Broadway to 30th street, 50 feet north of section line, and Walker-avenue storm sewer, consisting of two branches, one at intersection of 20th street and Olive avenue and other at intersection of 22d street and Olive avenue. (See "Machinery Wanted.")

Okla., Sapulpa.—City voted issuance of \$15,000 bonds for sewers, water-works and fire apparatus lately mentioned. Address The Mayor.

Tenn., Chattanooga.—Board of Public Works will award contract November 2 for construction of 13 small sewers; approximate cost, \$635.50.

Tenn., Nashville.—Board of Public Works awarded contract at \$4384 to T. V. Barnesfield, Nashville, for laying sewer in Alley 201, between Third and Fourth avenues North.

Tenn., Trenton.—City will receive bids until November 5 for construction of system of sanitary sewers; system comprises about 35,000 feet vitrified sewers from 8 to 18 inches in diameter, manholes, flush tanks, etc. (For other details see "Machinery Wanted.")

Tex., Canyon.—City awarded contract to H. A. Campbell, Amarillo, Tex., for construction of sewer and water-works system to cost \$25,000. (Lately mentioned.)

Tex., Dublin.—City voted October 26 on issuance of \$20,000 bonds for sewer construction. Address The Mayor.

Va., Richmond.—City will invite bids soon for construction of sewer system at Forest Hill; has awarded contract for surveying to C. P. E. Burgwyn; approximate cost, \$20,000.

TELEPHONE SYSTEMS

Ark., Moscow.—Moscow & Youngstown Telephone Co. organized with P. C. Galloway president, J. T. Conrad vice-president, Ed Young secretary-treasurer and manager; will construct telephone line to connect Moscow, Garretson and Youngstown.

Ky., Newport.—John W. Davis, City Clerk, received bids until October 26 for franchise, rights and privileges to construct and operate telephone and telegraph system; ordinance containing terms, conditions, etc., on file at office of City Clerk, Courthouse Building.

Miss., Jackson.—Home Telephone Co. will expend \$250,000 for construction of proposed telephone system in Jackson; will erect two-story brick building to cost \$25,000; will also establish systems to connect Jackson with Meridian and Hattiesburg, Miss., and construct line from Dallas, Tex., by way of Vicksburg, Miss.

Mo., St. Joseph.—Home Telephone Co. organized with \$1,200,000 capital stock; Theodore Gary, president; H. E. Scovern, secre-

tary-treasurer; R. W. Frey, auditor; will establish telephone system; will erect main exchange building two stories; cost \$30,000; branch exchange, one story; cost \$5000; ventilating system; plans by Rudolph Meier, 50 Ballinger Bldg., St. Joseph; George B. Roberts, 821 Francis St., St. Joseph, engineer in charge; machinery purchased.

N. C., Atkinson.—Pender Telephone Co. incorporated with \$10,000 capital stock by E. E. Murphy and others.

N. C., Lumberton.—Southern Bell Telephone & Telegraph Co., Atlanta, Ga., has purchased telephone system of White & McLean; will install new fixtures and operate; city granted franchise.

N. C., Nashville.—Nashville & Castalia Telephone Co. organized with S. J. Bartholomew, president; S. F. Austin, secretary-treasurer; to establish telephone system between Nashville and Castalia, N. C.

N. C., Summerfield.—Farmers' Telephone Co. incorporated with \$25,000 capital stock by C. W. Williams, R. O. Gamble and others.

Okla., Checotah.—Checotah-Texanna Telephone Co. incorporated with \$4000 capital stock by E. K. Cross, J. E. Wise and M. M. Cross.

S. C., Sandy Springs.—Sandy Springs Rural Telephone Co. incorporated by J. M. McElroy, H. C. Summers, Jr., J. D. Smith and others.

Tenn., Dickson.—Citizens' Telephone Co. will construct telephone system.

TEXTILE MILLS

N. C., Creedmoor.—Hosiery.—Standard Hosiery Mills Co. will, it is reported, increase capacity; present equipment, 20 knitting machines, etc.

N. C., Raleigh.—Hosiery.—Glenwood Knitting Mills will rebuild plant reported burned; loss \$2500.

N. C., Rockingham.—Cotton Cloth.—Entwistle Manufacturing Co. will erect main building, 128x480 feet, with engine and boiler room; one and two stories; mill construction; steam-heating plant; steam-power freight elevator; building contract awarded at \$64,000 to W. J. Stephenson & Son of Rockingham, as reported lately; C. R. Makepeace & Co., Providence, R. I., architects in charge; textile equipment will include 40,000 spindles and 1000 looms. (Previously reported organized, etc.)

S. C., Great Falls.—Gray Goods.—Republic Cotton Mills will be organized to build plant of 25,000 spindles, 640 dobby looms, etc.; electrical power; capital stock, \$900,000; president, Robert S. Melbane, Graham, N. C.; vice-president, Thos. B. Fuller, Durham, N. C.; secretary-treasurer, Hal B. Melbane, Graham; architect and engineer, J. E. Strine, Greenville, S. C.; company will erect spinning mill two stories high, about 635x132 feet, and one-story weaving mill about 132x400 feet; also warehouses, operatives' cottages, church, school, library, department store, etc.; will provide sewerage system, electric lights, water supply, etc.; plant will require about 15,000 horse-power. Address the president at Graham.

S. C., Greenville.—Bleachery, etc.—Union Bleaching & Finishing Co. will install machinery to increase capacity by 50 per cent.; has awarded contract.

S. C., Union.—Print Cloth.—Monarch Cotton Mills will at annual stockholders' meeting, November 22, consider increase of capital stock from \$750,000 to \$1,150,000 to enlarge plant; present equipment, 41,000 ring spindles, 1000 broad looms, etc.

Tenn., Nashville.—Hosiery.—May Hosiery Mills incorporated with capital stock of \$90,000 by Jacob May, A. E. Martin, G. S. Andrews and T. C. Boyd; will build mill of brick, three stories high, 50x65 feet, and one-story warehouse with 7000 feet floor space; will install machinery for knitting children's hosiery; daily output, 1000 to 1500 dozen pairs.

Tenn., Newport.—Hosiery.—C. M. Cooke, Jr., Brevard, N. C., and W. C. Cooke, Spartanburg, S. C., have leased Bellevue Cotton Mills, containing 3800 spindles, for yarn production; will install machinery to knit product into hosiery.

Va., Norfolk.—Knit Goods.—Knitting Mills Corporation chartered with capital stock of \$25,000; G. P. Peed, president; W. L. Lamerdin, vice-president; H. R. Furr, secretary-treasurer.

WATER-WORKS

Ark., Dumas.—Board of Commissioners, Water-works Improvement District No. 1, will receive bids until November 10 for construction of water-works system; I. N. Moore, secretary. (See "Machinery Wanted.")

Ga., Macon.—Pending action by State Legislature, which meets in June, 1910, city

will not proceed with construction of water-works, requirements for which were recently noted presented to Mayor and City Council; estimated cost, \$93,316.31.

Ga., Savannah.—City appropriated \$5000 for extension of water mains. Address The Mayor.

Ky., Georgetown.—City will vote November 2 on issuance of \$20,000 filtration bonds. Address The Mayor.

Miss., Clarksdale.—City engaged Walter S. Bobo of Clarksdale as engineer to prepare plans for proposed water-works and sewers for Oakhurst addition.

Miss., Meridian.—City contemplates soon to make proposed enlargement of reservoir; will install larger supply pipe from reservoir to pump station; details not decided; has completed other improvements previously mentioned, including addition of seven miles of mains and construction of \$12,000 concrete settling basin; also now installing proposed pump of 6,000,000 gallons daily capacity at cost of about \$20,000; Wm. F. Wilcox, manager Meridian Water-works.

Miss., Tunica.—City contemplates voting bonds for installing water-works in connection with electric-light plant; George Kausler, Mayor.

Mo., Chillicothe.—City defeated \$150,000 bond issue lately mentioned for water-works and electric-light plant. Address The Mayor.

Mo., Glasgow.—City voted issuance of \$30,000 bonds for extension of water-works, establishing sewer system and purchasing electric-light plant. Address The Mayor.

Mo., Glasgow.—City voted issuance of \$30,000 bonds for extending water-works, etc.; plans are being prepared by Burns & McDonnell, Kansas City, Mo.

N. C., Reidsville.—City has selected E. W. Myers, engineer, Greensboro, N. C., as designing and consulting engineer for improvements to water-works, filtration plant, pumping station, construction of 13 miles of pipe sewers and disposal plant and sidewalks. Bond issue of \$100,000 recently noted.

N. C., South Biltmore, P. O. Biltmore.—City has issued \$3000 bonds for water-works and sewer system. Address The Mayor.

N. C., Wilmington.—Water and Sewerage Commission awarded contract for reconstructing pipe system of water-works plant lately mentioned; contract for piping awarded to United States Cast Iron Pipe & Foundry Co., Chattanooga, Tenn., at about \$82,416.85; for hydrants, valves and boxes to Columbian Iron Works, Chattanooga, Tenn., at about \$6486.28; for construction work, at about \$26,530.06, to J. Whit Gurley & Co., Mobile, Ala.

Okla., Blackwell.—City voted issuance of \$12,500 filtration bonds lately mentioned. Address The Mayor.

Okla., Sapulpa.—City voted issuance of \$315,000 bonds for water, sewers and fire apparatus; lately mentioned. Address The Mayor.

Okla., Verden.—City defeated bond issue for water-works. (Recently mentioned.)

Tex., Bartlett.—City will vote on issuance of \$8000 bonds for elevated tank and tower at water-works lately mentioned. Address The Mayor.

Tex., Brownwood.—City voted issuance of \$20,000 bonds for improving and extending water mains; lately mentioned. Address The Mayor.

Tex., Canyon.—City awarded contract to H. A. Campbell, Amarillo, Tex., for construction of water-works and sewer system to cost \$25,000. (Lately mentioned.)

Tex., Conroe.—C. T. Darby, Mayor, will receive bids until November 4 for construction of artesian well; not less than four inches diameter. (See "Machinery Wanted.")

Tex., Mart.—Merchants and Business Men's Association, J. F. Boyd, secretary, 116 North Pearl St., Mart, contemplates drilling well 2000 to 3500 feet deep. (See "Machinery Wanted.")

Tex., Terrell.—City will vote November 23 on issuance of \$10,000 bonds for improving water-works and electric-light plant. Address The Mayor.

Tex., Wellington.—Wellington Water, Light & Ice Co. incorporated by T. S. Atkinson and others.

W. Va., Keyser.—City defeated \$16,500 bond issue for water-works lately mentioned. Address The Mayor.

WOODWORKING PLANTS

Ark., Jonesboro.—Heading.—Jonesboro Heading Co. incorporated with \$20,000 capital stock by J. A. Borgman, H. D. Alfrey and W. L. Livergood.

Ky., Louisville.—Louisville Furniture Manufacturing Co. (recently reported) had plans

prepared by and awarded contract to E. P. Lynch for erection of two-story reinforced concrete and brick factory building; size, 100x140 feet; cost, \$10,000; cost of machinery (purchased), \$8000; H. R. Whiteside, president; W. A. Pierson, secretary and treasurer.

Ky., Paducah.—Baskets, etc.—Federal Crate & Basket Co., Melbourne J. Parkhurst, secretary-treasurer, Malley Bldg., New Haven, Conn., has not perfected plans for improvements and installation of new equipment at acquired plant formerly known as Mergenthaler-Horton Basket Co. of Kentucky; will have special machinery built to prepare basket parts; will probably place order for kiln-dry equipment with Philadelphia Textile Machinery Co., Philadelphia, Pa.; will install steel retort for steaming logs; capacity of plant, when operated to full extent, 200,000,000 baskets per annum; company contemplates installing crate-making machinery later; capital stock \$500,000.

Md., Baltimore.—Boxes and Shooks.—J. A. Berryman Box & Shook Co. incorporated with \$100,000 capital stock by J. A. Berryman, 2523 Madison Ave.; Ernest Ponkow, 600 North Luzerne St.; John C. Kumpf, 215 Courtland St., and others.

Miss., Columbus.—Woodenware.—R. W. Edwards, Itta Bena, Miss., will equip for manufacturing woodenware; machinery purchased.

Mo., St. Louis.—Cooperage.—Columbia Cooperage Co. will probably erect addition to plant.

Okla., McAlester.—Molding, Sash, etc.—New State Lumber Co. is proceeding with construction of proposed plant; has completed main building and installed machinery for planing and dressing lumber and for manufacture of molding, sash and doors, etc.; has drykilns in course of erection; contemplates erection of sawmill; capital stock \$100,000, to be increased; C. W. Dawley, president; J. L. Waggoner, vice-president; W. P. Freeman, secretary; temporary office at plant on North 6th street.

Va., Norfolk.—Boxes.—L. J. Upton awarded contract to T. D. Murden, Norfolk, for erection of brick building for storage and box factory.

Va., Portsmouth.—Boxes.—Standard Box & Lumber Co., recently noted under Norfolk, Va., to rebuild burned plant, will erect one-story structure; 120x120 feet; brick.

W. Va., Parkersburg.—Chairs.—Parkersburg Chair Co. will erect addition to plant; 60x75 feet; five stories; cost, \$20,000.

BURNED

Ala., Newville.—Newville Mercantile Co.'s stores; Farmers' Union Warehouse.

Ala., Wetumpka.—Lucius Bass' cotton gin and sawmill; loss \$3500.

Ark., Fayetteville.—University of Arkansas' physics building; loss \$7500.

Ark., Granfield.—Edward Henry's sawmill.

Ark., Hardy.—W. S. Morgan & Sons' sawmill; loss \$3000.

Ark., Hope.—L. Fountaine's residence; estimated loss, \$5000.

Ark., Jonesboro.—John B. Clauch's cotton gin; loss \$5000.

Ark., Texarkana.—Paul J. Calla's residence; loss \$3000.

Ark., Sulphur Rock.—J. W. Maryin's cotton gin.

Ark., Van Buren.—Kings Theater; loss \$5000.

Ga., Columbus.—Julius Friedlander & Co.'s plant; loss \$5000.

Ga., Homerville.—Dubois Institute; loss \$150,000.

Ga., Macon.—Central Georgia Brick Co.'s plant; loss \$10,000.

La.—Mrs. C. A. Swearingen's cotton gin; loss \$3500.

Md., Adamstown.—Henry Degrange's two barns, cornhouse and wagon shed; loss \$4000.

Md., Laurel.—William E. Gilbert's residence; loss \$10,000.

Miss., Brookhaven.—W. G. Linton's cotton gin at Zetus; loss \$5000.

Miss., Perks.—T. J. Martin's sawmill and gin; loss \$4000.

Miss., Picayune.—R. J. Williams' machine shops.

Miss., Silver Creek.—D. C. Griffith & Co.'s barns and warehouse; loss \$10,000.

Mo., Caledonia.—Methodist Church. Address The Pastor, Methodist Church.

Mo., St. Louis.—Factory owned by Goodwin Candle Manufacturing Co., New Orleans, La.; loss \$9000.

N. C., Greenville.—W. L. Smith's store and cotton gin.

N. C., Raleigh.—Glenwood Knitting Mills; loss \$2500.

S. C., Chester.—Belmont Hotel, N. P. Johnson, proprietor; loss \$2500.

Tenn., Cleveland.—John H. Smith's residence; loss \$4000.

Tenn., Columbia.—J. H. Hoffman's residence.

Tenn., Fayetteville.—A. M. McLaughlin & Co.'s store building; loss \$15,000.

Tenn., Humboldt.—L. E. Hooks Lumber Co.'s warehouse; loss \$7000.

Tenn., Lynnville.—Isom Collins' residence, owned by John T. Clark.

Tenn., Warrens Bluff.—A. L. Goff's cotton gin and sawmill.

Tex., Ammansville, R. F. D. from Lagrange.—John P. Heller's cotton gin; loss \$4000.

Tex., Fort Worth.—Reliable Laundry; loss \$8000.

Tex., Fort Worth.—Reliable Steam Laundry Co.'s plant; loss \$3000.

Tex., Grandbury.—S. L. Knight's residence; loss \$5000.

Tex., Indian Creek.—Holder Bros.' cotton gin; loss \$14,000.

Tex., Germantown.—Henry Prael's residence; loss \$4000.

Tex., Greenville.—T. J. Vines' cotton gin; loss \$10,000.

Tex., Kaufman.—Thompson Bros.' store; loss \$16,000.

Tex., Ladonia.—C. H. Woods & Co.'s cotton gin; loss \$15,000.

Tex., Midland.—Live Stock Reporter plant, owned by Charlie Wabon, loss \$6000; Clark & Mains' store, loss \$4000; W. H. Rhodes' buildings, loss \$2000; G. H. Butler's building, loss \$10,000.

Tex., Orange.—Opera-house; Edgar Holland and Will Labit, lessees; loss \$22,000.

Va., Flincastle.—W. Breckenridge's residence, "Grove Hill"; loss \$25,000.

Va., Lynchburg.—Presbyterian Orphan Home's Shelton Cottage.

Va., Rio Vista.—Claude Dabney's residence; loss \$5000.

W. Va., Elkins.—The Dick Building; loss \$5000.

W. Va., Parkersburg.—S. W. Goff's dairy barn; loss \$10,000.

WRECKED BY EXPLOSION

Ark., Griffin.—Griffin Lumber Co.'s sawmill.

Okla., Graham.—Zack Haremon's cotton gin.

BUILDING NOTES

APARTMENT-HOUSES

Ky., Georgetown.—F. S. Brock will erect two-story apartment building.

Md., Baltimore.—James Trainor, Belvidere Ave., near Denmore Ave., has plans by Robert C. Ulrich, 72 Gunter Bldg., Baltimore, for erection of apartment-house at Garrison avenue, Grantley street and Powhatan avenue; three stories and basement; will contain six eight-room apartments. Among contractors estimating are Chas. L. Stockhausen, National Marine Bank Bldg.; J. Walsh & Sons, 1533 Maryland Ave.; John F. Hardy, Groveland and Eldorado Aves.; Walter Copinger, 602 West Lafayette Ave., and Lorenzo Schoenlein & Son, 2217 East Baltimore St., all of Baltimore.

Mo., Kansas City.—Howard J. Vrooman will erect apartment-house; 118x40 feet; three stories; 12 apartments; cost \$25,000.

Mo., Kansas City.—C. C. Carter will erect apartment-house; three stories; 63x40 feet; six apartments; cost \$10,000.

Mo., Kansas City.—C. R. Bruce will erect apartment-house; three stories; 41x40 feet; nine apartments; cost \$10,000.

Mo., Kansas City.—F. M. Calhoun will erect apartment-house; three stories; 41x55 feet; six apartments; cost \$10,000.

Mo., Kansas City.—Fred Johnson and R. J. De Lane will erect apartment-house; 112x53 feet; three stories; cost \$35,000.

Mo., Kansas City.—A. Sheenway will erect apartment-house; 35x65 feet; six apartments; cost \$12,000.

Mo., St. Louis.—Le Grand Jones Improvement Co., 708 Locust St., will erect three-story brick and terra-cotta apartment-house recently mentioned; 74x105 feet; steam heat; cost \$30,000; L. Baylor, Pendleton (Mo.) Trust Bldg., St. Louis, architect; construction by company.

Mo., St. Louis.—M. R. Faherty will erect apartment-house; three stories; cost \$25,000.

W. Va., Parkersburg.—Hile & Higgs have contract for erection of double apartment-house; three stories; cost \$15,000.

BANK AND OFFICE BUILDINGS

Ark., Russellville.—Hope County Bank, H. W. Patrick, president, awarded contract to Baswell & Scarlet, Russellville, for erection of building; 25x100 feet; two stories; cost \$5000. (Previously noted.)

D. C., Washington.—A. W. Lacey, 622 F St. N. W., awarded contract to Chas. J. Cassidy Company, 523 13th St. N. W., Washington, for erection of proposed fireproof office building; brick and steel; 28 feet 4 inches by 121 feet; low pressure steam heat; electric lighting; two electric elevators; cost, \$115,000; plans by A. P. Clark, Jr., Washington.

Fla., Kissimmee.—Citizens' Bank of Kissimmee (recently noted to be organized) will erect brick building; 50x70 feet; bank and store first floor; offices second floor; electric lighting; cost \$5000; Chas. W. Dann, Kissimmee, interested. (See "Machinery Wanted.")

Ga., Savannah.—Chamber of Commerce has not yet received plans for proposed building recently announced; will erect structure 180x200 feet; five stories; fireproof construction; steam heat; electric passenger elevators; for offices and auditorium; cost \$300,000; architect, H. W. Witcover, Savannah.

Ky., Georgetown.—G. H. Nunnelley will erect office building; four stories; will install elevator.

La., Bogalusa.—C. C. Tate will erect office and store building; two stories; concrete; construction begun.

La., New Orleans.—City Bank & Trust Co. will award contract November 4 for erection of bank building lately mentioned; two stories; brick; terra-cotta and granite; plans by De Buys, Laboulasse & Churchill, New Orleans.

Md., Baltimore.—Arundel Sand & Gravel Co., 806 Fidelity Bldg., awarded contract to Thomas Strouse, 600 Law Bldg., Baltimore, for erection of office building on Pier 2, Pratt St.; 20x40 feet; concrete; cost \$4000; plans by Charles M. Anderson, 324 North Charles St., Baltimore.

Miss., Summer.—T. G. James, B. E. Townes and R. L. Ward, building committee People's Bank of Summer, will receive bids until October 26 for erection of bank building; plans and specification on file at office of Builders' Exchange, Memphis, Tenn., and at office of R. Jesty & Co., Winona, Miss.; bids must be accompanied by certified check 5 per cent. of bid.

Mo., Kansas City.—Thomas Cusack Company has plans by S. B. Tarbet, Kansas City, for erection of office building; two stories; 100x120 feet; brick, terra-cotta and stone; bank front with four columns; estimated cost \$40,000.

Mo., St. Louis.—Commonwealth Trust Co. will erect office and theater building; estimated cost \$500,000.

Okl., Oklahoma City.—State National Bank, Edward H. Cook, president, awarded contract at \$300,000 to Selden-Breck Construction Co., St. Louis, Mo., for erection of bank building lately mentioned; 12 stories; 50x140 feet; steel frame; exterior filling of Bedford gray stone; structure will contain 250 offices and banking-room 50x90 feet; fireproof; will install three passenger elevators; construction begun.

Okl., Oklahoma City.—Geo. W. Scales and O. W. Connolly will erect office and store-room; five stories; brick; 50x140 feet; cost, \$25,000.

S. C., Greenville.—Masonic Temple Co. awarded contract to Huger Bros., First National Bank Bldg., Nashville, Tenn., for erection of office, store and lodge building recently mentioned; cost \$125,000. (See "Miscellaneous Structures.")

S. C., Orangeburg.—Farmers and Merchants' Bank, W. L. Moseley, president, will erect bank and office building.

Tenn., Algood.—Bank of Algood, H. T. Pointer, president, will erect small bank building; will install safe and vault front costing \$800.

Tex., Caddo Mills.—First National Bank, George L. Van Cleave, president, will erect brick structure; 40x50 feet; cost, \$5000; will purchase bank fixtures. (See "Machinery Wanted.")

Tex., Houston.—R. F. Butts will erect bank building; 50x75 feet; two stories; cost \$12,000.

Tex., Mt. Pleasant.—Danman-Saunders Lumber Co. will erect office building; brick; 20x120 feet.

Va., Greenville.—Bank of Riverheads has plans by Eutsler Bros., Grottoes, Va., for erection of bank building; 22x40 feet; will install burglar-proof vault.

Va., Mt. Solon.—Mt. Solon Bank, M. B. Whitmore, president, will erect \$3000 fireproof bank building; 16x30 feet; bank fixtures purchased.

Va., Richmond.—National Bank of Virginia has plans for erection of bank building; 12 stories; stone facing, steel and concrete; estimated cost, \$175,000.

CHURCHES

Ga., Atlanta.—Park Street Methodist Church has plans for erection of church. Address The Pastor Park Street Methodist Church.

Ga., Atlanta.—Ansley Park Church will erect edifice. Address The Pastor Ansley Park Church.

La., Baton Rouge.—Presbyterian Church, I. M. Hunter, pastor, contemplates erection of Sunday-school building; will use heating plant of church; electric lighting; plans not yet determined.

Mo., St. Louis.—Chouteau Place Methodist Episcopal congregation will erect \$15,000 church. Address The Pastor, Chouteau Place M. E. Church.

N. C., Greensboro.—Friends' Church has awarded contract to J. C. Morris, Greensboro, for erection of edifice; brick; slate roof; cost \$15,000.

N. C., Spring Hope.—Baptist congregation has plans for erection of edifice. Address The Pastor, Baptist Church.

N. C., Spring Hope.—Methodist congregation has plans for erection of church. Address The Pastor, Methodist Church.

N. C., Wilmington.—St. Andrews' Presbyterian Church, A. D. McClure, pastor, will erect chapel in East Wilmington.

Tenn., Sparta.—Presbyterian Church, John M. Welch interested, awarded contract to Kinsey Bros., Sparta, for erection of edifice; native stone and red pressed brick; hot-water heat; electric lighting; cost, \$8000; seating capacity, 300; plans by A. B. Woodward, Sparta. (See "Machinery Wanted.")

Tenn., Tullahoma.—Christian Church has purchased site 50x100 feet and will erect edifice. Address The Pastor, Christian Church.

Tex., Amarillo.—Sacred Heart Catholic Church, D. H. Dunne, pastor, will erect \$25,000 edifice.

W. Va., Keyser.—First Methodist Episcopal Church will erect addition to present structure. Address The Pastor First Methodist Episcopal Church.

COURTHOUSES

Ark., Fort Smith.—Sebastian Quorum Court appropriated \$10,000 addition to courthouse.

Okl., Tulsa.—Tulsa county voted issuance of \$200,000 bonds for erection of courthouse lately mentioned. Address Tulsa County Commissioners.

W. Va., Pineville.—Wyoming county has awarded contract to M. P. McGraw for erection of courthouse, and to James L. Stewart for vaults.

DWELLINGS

Ark., Little Rock.—A. W. Smith awarded contract to S. R. Byrly, 2818 High St., Little Rock, for erection of two-story frame building recently noted; hot-air heat; cost \$4000; plans by Frank Gibb, Gazette Bldg., Little Rock.

D. C., Washington.—Mrs. Selma Baum purchased through Shannon & Luchs, 704 13th St. N. W., site on Connecticut avenue, and will erect residence.

D. C., Washington.—Kennedy Bros., 1413 G St. N. W., will erect 69 dwellings on Rock Creek Church road, Water street and Georgia avenue; three stories; eight rooms and two baths; cost \$345,000.

D. C., Washington.—Joseph C. Sibley, 1715 Massachusetts Ave. N. W., is having plans prepared by Wood, Donn & Deming, 808 17th St. N. W., Washington, for residence previously mentioned; 100 feet wide.

Fla., St. Petersburg.—George Pressman will erect residence; two stories; 17-inch brick walls covered with cement stucco; parquet floors except kitchen and bathroom, which will be cement; electric lights; stained-glass windows; open fireplaces; will also erect garage and servants' quarters; cost \$12,000.

Fla., Tampa.—Ofole Bros. awarded contract to E. D. Gray, 1208 Fourteenth Ave., Ybor City, Fla., for erection of dwelling; wood, brick and plastered; 50x40 feet; mill construction; cost \$5000; mentioned previously. (See "Machinery Wanted.")

Ga., Cochran.—J. J. Blount let contract for dwelling recently mentioned; eight rooms; plans by J. W. Bynum; cost \$5000.

Ga., Savannah.—Savannah Trust Co. awarded contract to A. S. Bacon & Co., Savannah, for erection of 48 dwellings; one story; frame; cost \$20,000.

La., Gibsland.—C. H. Beardsley will erect residence.

La., New Orleans.—Hugh McClosky will erect residence.

La., Walker.—S. E. Wascom, Corbin, La., awarded contract to J. Drehr for erection of dwelling; main building 26x32 feet; ell 24x22 feet; ell porch 6x64 feet.

Md., Baltimore.—Mrs. Rose, Norton, purchased site in Walbrook through Mont Alto Company, St. Paul and Saratoga Sts., and will erect residence.

Md., Baltimore.—Church Home and Infirmary, Broadway and Fairmount Ave., is having plans prepared by George R. Morris, Equitable Bldg., Baltimore, for nurses' home; three stories and basement; 26x150 feet; facade of red pressed brick; cut-stone and terra-cotta trimmings; cost \$30,000. Contractors estimating include John Cowan, 106 West Madison St., and B. F. Bennett Building Co., 123 South Howard St., both of Baltimore.

Md., Baltimore.—Fred Menkert is having plans prepared by George R. Morris, Equitable Bldg., Baltimore, for residence at Windsor Hills; two and a half stories; frame construction; cost \$7000; construction under supervision of architect.

Md., Baltimore.—Cedarcroft Land Co. has plans by George S. Norris and Richard Erskine, Philadelphia, Pa., for residence at Cedarcroft; contractors estimating include Arthur F. West, 217 South Gilmor St.; Piel Construction Co., Equitable Bldg., each of Baltimore; Anthony F. Madary, Hamilton, Md.

Md., Baltimore.—Commercial Realty & Construction Co. has plans by Jacob F. Gerwig, 210 East Lexington St., Baltimore, for eight dwellings at Baker and Fifth streets; two stories; cost \$8000.

Md., Baltimore.—W. Nelson Thomson awarded contract to Milton C. Davis, 5 Hopkins Pl., Baltimore, for erection of dwelling at Liberty Heights and Cleveland avenues; 30x51 feet; cost \$12,000; plans by J. E. Lafferty, 11 East Pleasant St., Baltimore.

Md., Baltimore.—Charles F. Stein, 231 Courtland St., awarded contract to Engineering-Contracting Co., 502 St. Paul St., Baltimore, for erection of residence on Lakeview avenue; three stories; ordinary construction; steam heat; gas and electric lights; 40x40 feet; cost \$15,000.

Md., Baltimore.—Frank H. Phelps, Fidelity Bldg., awarded contract to David C. Slonaker, Baltimore, for erection of residence on Chelsea Terrace; two and a half stories; frame; 27x33 feet; slate roof; steam heat; cost \$5000.

Md., Baltimore.—John J. Watson, 763 Calvert Bldg., will erect 20 dwellings at Mont Alto; nine rooms and bath to 12 rooms and bath; tiled bathrooms; frame construction; hot-water heat; electric and gas lighting; cost \$90,000; construction by days' labor and subcontracts; to begin November 1.

Md., Baltimore.—Charles M. Wartman, 1617 Milton Ave., is having plans prepared by Henry J. Tinley, 314 North Charles St., Baltimore, for 30 dwellings on Clement, Andre and Richardson streets, Locust Point; two stories; brick; cost \$30,000.

Md., Baltimore.—Aetna Construction Co. incorporated with \$2500 capital stock by Maurice Gumenick, 1431 East Fayette St.; Nathan Zeiger and Thos. Charles Williams, Equitable Bldg.; has plans by Jacob F. Gerwig, 210 East Lexington St., Baltimore, for seven dwellings on Grayson street; two stories; brick; 14x66 feet; hot-air heat; gas and electric lights; construction by owner; cost \$10,000.

Md., Baltimore.—Howard Realty Co. has plans by Stanislaus Russell, 3900 Clifton Ave., Baltimore, for two dwellings at Baker and 9th streets; two stories; brick; 22x34 feet; steam heat; slag roof; cost \$5000.

Md., Montgomery County.—Robert S. Woodward, 1513 16th St. N. W., Washington, D. C., will erect stone residence.

Md., Montgomery County.—H. M. Nichols, Oil City, Pa., will erect two dwellings.

Md., Mt. Washington.—D. E. Duff has plans by Owens & Cisco, Continental Bldg., for colonial residence; contractors estimating include Milton C. Davis, 5 Hopkins Pl.; James F. Farley, Franklin Bldg.; G. Walter Tovell, S. S. Bouls and Philip Watts, all of Baltimore, Md.

Mo., St. Louis.—L. Blumenkrantz Real Estate Co. will remodel buildings 1502 to 1518 Market street into hotel; 300 rooms; will rebuild front of hotel; structure has been leased by Morris Cohen.

Okl., Oklahoma City.—E. A. Barnes will erect dwelling; two stories; brick and frame; cost \$6300.

S. C., Rock Hill.—E. B. Cook is having plans prepared by J. S. Starr, Rock Hill, for

colonial residence; frame; press brick and stone trimmings; two stories and basement; slate roof.

Tenn., Chattanooga.—Walter Phillips, care Independent Ice Co., 24-26 William St., awarded contract to J. P. Bonner, 110 Main Ave., Hill City, Tenn., for erection of residence at Riverview (suburb); six rooms; one story; frame; shingle roof; electric lights, and shingle-roof barn; total cost \$3300.

Tenn., Chattanooga.—J. A. Caldwell, 9 Live and Let Block, awarded contract to John E. Davis, Harrison Ave., Chattanooga, for erection of three brick dwellings at southeast corner Whiteside street and Chattanooga avenue; one story; metal roof; concrete porches; stained hard pine interior finish; cabinet mantels; electric lighting; cost \$3500.

Tenn., Chattanooga.—J. F. Bennett and S. A. Le Clercq, 424 East 4th St., will probably award subcontracts and have work done by day on proposed residence on Mission Ridge (suburb); two stories and basement; cobblestone foundations; frame; shingle roof; oak and pine floors; hard pine interior finish; cabinet mantels; electric lighting; plans by Huntington U. Sears, James Bldg., Chattanooga.

Tenn., Chattanooga.—Chas. R. Graham, care Barnes Bros. Company, 706 East 9th St., awarded contract to G. W. Harris, 216 South Prospect St., Chattanooga, for erection of proposed one-story frame residence at St. Elmo (suburb); shingle roof; electric lighting.

Tenn., Knoxville.—W. C. Cobb awarded contract to Thomas & Turner, Knoxville, for erection of dwelling; frame; cost \$3500.

Tenn., Memphis.—H. E. Meacham awarded contract to Meacham & Hill, Memphis, for erection of residence; two stories; brick veneer; cost \$3900.

Tenn., Memphis.—J. Hardin awarded contract to F. M. Irwin, Memphis, for erection of dwelling; two stories; 10 rooms; stone and stucco; cost \$10,000.

Tenn., Memphis.—M. E. Hill awarded contract to Meacham & Hill, Memphis, for erection of two-story brick-veneered residence; cost \$7000.

Tenn., Memphis.—J. A. McAllister awarded contract to Meacham & Hill, Memphis, for erection of residence; one story; frame; bungalow style; seven rooms; cost \$3850.

Tenn., Nashville.—R. L. Eaton will erect residence.

Tenn., Ripley.—Joe O. Wells awarded contract to J. H. Cullen, Ripley, for erection of dwelling.

Tex., Houston.—J. P. Carter awarded contract to Douglas A. Crawford, Houston, for erection of residence recently mentioned; 100x150 feet; outer walls gray Roman pressed brick and dressed stone; steam heat; cost \$30,000; plans by C. D. Hill & Co., Houston.

Tex., Lockhart.—M. C. Kelly will erect residence.

Tex., Mineral Wells.—W. G. Chapman awarded contract to Murphy & Goodwin, Mineral Wells, for erection of dwelling; cost \$6000.

Tex., San Antonio.—R. T. Pruitt will erect two-story eight-room residence; colonial style.

Va., Norfolk.—Mrs. Jennie Rosenbaum, New York, accepted plans by and awarded contract to C. F. Nelms, 900 Washington St., Portsmouth, Va., for erection of 12 dwellings; cost \$11,000; has begun construction.

Va., Norfolk.—C. C. Coupee will build dwelling to cost \$3500; modern bathroom fixtures; hot-water heating; architect and contractor, C. F. Nelms, 900 Washington St., Portsmouth, Va.

Va., Norfolk.—E. Rosenbaum awarded contract to C. F. Nelms, Norfolk, for erection of seven dwellings; brick; cost \$5000.

Va., Norfolk.—George F. Wilkerson will erect double brick dwelling; cost \$3000.

Va., Staunton.—A. E. Harnsberger awarded contract to W. Lerner, Box 512, Staunton, for erection of three dwellings recently mentioned; two stories, with basement; 65x45 feet; hollow concrete-block construction; hot-air heat; gas and electric lighting; cost \$6000; plans by A. E. Dabney, Staunton.

W. Va., Wheeling.—David and Frank Evans awarded contract to Peddicord Bros., Woodlawn, O., for erection of four dwellings.

GOVERNMENT AND STATE BUILDINGS

Ala., Montgomery.—Treasury Department, office of Supervising Architect James Knox Taylor, Washington, D. C.—Sealed proposals will be received until November 24 for construction (including plumbing, gaspiping, heating apparatus, electric conduits and wir-

ing) of extension, remodeling, etc., to United States courthouse, postoffice, etc., at Montgomery, in accordance with drawings and specifications, copies of which may be obtained from custodian at Montgomery or at architect's office.

Mo., Mt. Vernon—Sanatorium.—Board of managers of Missouri State Sanatorium will receive bids until November 6 for erection of brick laundry building and installing 578 feet of steam piping in tunnel; plans and specifications on file at institution at Mt. Vernon and at office of H. H. Hohenschild, architect, Rolla, Mo., or at office of Dr. William Porter, president of board of managers, Room 422 Commercial Bldg., St. Louis, Mo. Each bid for erection of laundry building must be accompanied by a certified check for \$200, payable to order of W. L. Gupton, secretary. Each bid for furnishing and installing of tunnel piping must be accompanied by certified check for \$100, payable to order of W. L. Gupton, secretary; checks to be forfeited to board in case successful bidder does not enter into proper contract, with bond, within 10 days from date of awarding contract; the board reserves the right to reject any and all bids.

HOTELS

Ala., Gadsden.—A. P. Relch, manager Hotel Printup, will improve and remodel hotel; will tile lobby; install elevator and steam heat. (See "Machinery Wanted.")

Ala., Troy.—Troy Realty Co. has revised plans by Johnck & Putman, Birmingham, Ala., for erection of \$80,000 hotel, previously mentioned; brick; terra-cotta; elevator, steam heat; contract will be awarded shortly.

Ga., Augusta.—M. W. Partridge will expend \$15,000 on 20-room addition to hotel; four stories; frame; 90x40 feet; electric lighting; plans and construction by owner. (Recently noted.)

La., Covington.—Tammany Hotel Co., Ltd., organized by Louis A. Denechaud, New Orleans, La., and others; purchased Sulphur Springs property on Bogue Falaya River and will erect tourists' hotel; estimated cost, \$200,000.

Mo., Kansas City.—Godfrey A. Jones and Berlau Bro. will erect hotel and store building; three stories; 100x127 feet; estimated cost \$40,000.

Mo., Kansas City.—E. C. Johnson, New London, Conn., will erect four-story hotel and store building.

N. C., Hendersonville.—H. S. Anderson has plans for erection of hotel at Columbia Park; 150 rooms; cost \$100,000.

Tenn., Dickson.—Citizens' National Bank, W. I. Choate, president, will erect hotel; three stories; brick and concrete; cost \$60,000.

Va., Kenbridge.—Kenbridge Hotel Co. will open bids November 15 for erection of proposed hotel; three stories; 42x60 feet; ordinary brick construction; steam heat; cost \$6500; plans by S. J. Castle, Kenbridge.

MISCELLANEOUS STRUCTURES

Ala., Birmingham.—Lodge.—Birmingham Fraternal Association will erect temple for Odd Fellows and Knights of Pythias; cost \$40,000.

Ark., Fort Smith.—Jail.—Sebastian County Quorum Court appropriated \$10,000 for erection of county jail.

Ark., Mammoth Springs.—Business.—Wood Grocery Co. will erect business building; four stories; stone.

Fla., Ireland.—Jail.—Volusia county awarded contract at \$21,000, less \$700 allowed for cells in old building, to Pauly Jail Building Co., St. Louis, Mo., for erection of jail and sheriff's residence; No. 1 Macon fire-burnt brick; asbestos shingle roof. (Recently mentioned.)

Fla., St. Petersburg.—Business.—Edward Tonneller will erect brick business building.

Fla., Tampa.—Building.—Mrs. J. A. Freible will erect two-story brick building on Jackson street; cost \$2375.

Fla., Tampa.—Stable.—Swann & Holtsinger will erect two-story wooden stable at Sixth avenue and 16th street; cost \$3000.

Fla., Tarpon Springs.—Store.—George Cretkos will erect store building; pressed-brick front; 50x30 feet; one story.

Ga., Atlanta.—Store.—Hugh T. Inman is having plans prepared by A. T. Ten Eyck Brown, Atlanta, for proposed store building; fireproof; 61x175 feet; elevators; basement story plate glass and green oxidized iron; upper stories light pressed yellow brick; cost \$20,000 to \$25,000.

Ga., Atlanta.—Auditorium.—Gude & Walker, Atlanta, have contract for remodeling Auditorium Armory building for exhibition

purposes; will construct mezzanine floor around dress circle in main building and make improvements to entire structure; will install temporary freight elevator; cost of improvements between \$18,000 and \$22,000.

Ga., Atlanta.—Lodge.—District Grand Lodge No. 18, Odd Fellows, will receive competitive plans at office of R. E. Pharrow, 210½ Auburn Ave., Atlanta, for proposed Odd Fellows' Building; 51x100 feet; probably six or eight stories, exclusive of basement; cost \$85,000; M. B. Morton, Athens, Ga., and R. E. Pharrow, special committee; B. L. Ingram, district grand master.

Ga., Dublin.—Business.—J. B. Burch will erect business building.

Ga., Savannah.—Auditorium.—Public interest committee of Chamber of Commerce, F. M. Oliver, chairman, is having plans prepared by H. W. Witcover, Savannah, to be submitted to city authorities, for either combination office building, 130 rooms and auditorium with seating capacity of 5000, 200x180 feet, five stories, steam heat, electric passenger elevator, cost \$300,000, or auditorium over city market.

Ky., Middlesboro.—Business.—R. C. Ford and others will not erect business building recently mentioned.

Md., Baltimore.—Store.—Baltimore Optical Co., 28 West Lexington St., has plans by Haskell & Barnes, 407 Wilson Bldg., Baltimore, for proposed store building at Liberty and Clay streets; three stories; contractors estimating include James F. Farley, Franklin Bldg.; Fred Decker & Son, 1209 East Biddle St.; W. H. Porter & Son, 507 Forrest St.; J. J. Knight, 106 Clay St., all of Baltimore.

Md., Baltimore.—Business.—J. W. Eisenhardt, 530 North Gay St., awarded contract to B. Howard Mason, 1221 Valley St., Baltimore, for erection of business building at 108-110 West Lombard street; three stories; 26x87 feet; cost \$7500.

Md., Baltimore.—Store and Dwelling.—Chas. Wiskow, 1220 Frederick Ave. Ext., has plans by Frederick Wright, 1043 Myrtle Ave., Baltimore, for store and dwelling on Frederick avenue near Collins avenue; two stories; brick; furnace heat; 16x50 feet; tin roof; cost \$2500.

Md., Baltimore.—Store and Dwelling.—Fredrick Bauernschmidt, 1104-1128 Hillen St., has plans by Robert C. Ulrich, Baltimore, for store and dwelling at 1709 Hope street; two stories; brick; 13x31 feet; slag roof; cost \$3000.

Md., Baltimore.—Store and Dwelling.—Charles D. Moore, Jr., 3400 Chestnut Ave., awarded contract to Milton C. Davis, 5 Hopkins Pl., Baltimore, for erection of store and dwelling at 2400 Chestnut avenue recently mentioned; two stories; brick; 20x62 feet; slag roof; steam heat.

Md., Chevy Chase.—Clubhouse.—Columbia Country Club, Henry L. West, president, District Bldg., Washington, D. C., accepted plans by Fred Pyle, Equitable Bldg., Washington, D. C., for clubhouse recently mentioned; cost \$50,000.

Miss., Collins.—Store.—Mr. Burns will erect brick store building to replace frame structure.

Miss., Collins.—Store.—A. V. Easterling will erect two-story store building.

Miss., Greenwood.—Business.—M. M. Bardwell will erect two-story brick business building.

Miss., Meridian.—Business.—S. H. Floyd, J. W. Barber and S. S. Coleman will erect business building, to cost \$200,000.

Mo., Kansas City.—Barns.—Wolcott, Beers & Grant are having plans prepared by Kansas City Stockyards Co.'s engineers for horse and mule barn; 200x180 feet; brick; gravel roof.

Mo., Kansas City.—Clubhouse.—Marion Bollinger has plans by Edgar C. Faris and Chas. K. Carrier, Kansas City, for clubhouse for Yaddle and Camp Club; frame; two stories; pagoda style; 40x62 feet; cost \$4500.

N. C., Bailey.—Mercantile.—W. D. Farmer awarded contract to H. S. Poole, Rocky Mount, N. C., for erection of store building.

N. C., Greensboro.—Business.—John Barker will erect business building; three stories; brick; 24.8x75 feet; ordinary fireproof construction; gas and electric lighting; stoves.

Okla., Bartlesville.—Lodge, etc.—Trustees F. O. E., Bartlesville Aerie, No. 610, Fred Lang, secretary, will let contract November 1 for erection of two-story brick building recently mentioned; 40x140 feet; gas and electric lighting; cost \$10,000; plans by E. J. Nichols, Bartlesville; first story for business; lodgerooms above.

Okla., Enid.—Clubhouse.—National Order of Owls, W. H. Whaley, president, Dallas, Tex., will erect \$5000 clubhouse.

Okla., Tulsa.—Business.—J. J. Dalley awarded contract to Burnside Company, Tulsa, for erection of business block; two stories; brick; frontage 50 feet; cost \$12,000.

Okla., Tulsa.—Jail.—Tulsa county voted issuance of \$25,000 bonds for erection of jail lately mentioned. Address Tulsa County Commissioners.

S. C., Belton.—Business.—Leroy A. Wents has awarded contract to F. W. Vaughn, Belton, for erection of business building; 50x90 feet; double story; plans by J. H. Casey, Anderson, S. C.

S. C., Greenville.—Masonic Temple.—Masonic Temple Co. will expend \$125,000 on building, contract recently noted awarded to Hugger Bros., First National Bank Bldg., Nashville, Tenn.; lodge building, stores and offices; six stories and basement; 48x125 feet; reinforced concrete skeleton construction; brick veneer; plans by J. E. Strrine, Greenville.

S. C., Rock Hill.—Business.—C. L. Cobb will erect business building; two stories; brick; to be occupied by J. J. Keller & Co., contractors.

Tenn., Chattanooga.—Mercantile.—L. L. Fisher, care of W. F. Fisher & Bro. Co., 801 Market St., awarded contract to Cox & Rider, 121 Burch St., Chattanooga, for erection of two-story brick building on East 9th street; 22x60 feet; composition roof; gas lighting; plans by Chas. E. Bearden, Chamberlain Bldg., Chattanooga; cost \$10,000. (Recently mentioned.)

Tenn., Chattanooga.—Mercantile.—S. Moyses, James Bldg., will erect two-story brick building on East Main street; 25x70 feet; hard pine interior finish; electric and gas lighting; composition roof; first floor, store; second floor, apartment; cost \$2500; construction by day's work, supervised by W. B. Etheridge, 211 Baldwin St., Chattanooga.

Tenn., Johnson City.—Store.—W. D. Gray will erect two-story brick store building; 50x145 feet.

Tenn., Archer City.—Jail.—Commissioners' Court of Archer County will receive bids until November 6 for erection of jail; certified check for \$1000; plans and specifications on file at office of J. S. Melugin, County Clerk, Archer City.

Tenn., Chapin.—Business.—Chapin Improvement Co. incorporated with Walter M. Doughty president, George P. Brown vice-president, V. A. Elbers secretary-treasurer; will erect \$10,000 brick and stone business building.

Tex., El Paso.—Clubhouse.—Toltec Club will erect \$100,000 clubhouse.

Tex., Pflugerville.—Business.—Imken & Neese will erect brick business building.

Tex., Red Oak.—Store.—G. L. Ligon will erect store building; two stories; brick.

Tex., Red Oak.—Lodge.—Odd Fellows Lodge will erect building; two stories; brick.

Va., Norfolk.—Store.—Phillip Levy has not awarded contract to Myers-Turpin Construction Co., as recently incorrectly noted, but rejected all bids and opened new bids October 27 for completion of Vinery building, including erection of two additional stories and remodeling present structure; plans by John K. Peebles, Norfolk, on file at Norfolk Builders' Exchange.

Va., Portsmouth.—Store.—Hofheimer Bros. purchased Southern Bell Telephone building and will make improvements.

Va., Portsmouth.—Business.—A. Rothschild will erect business building; two stories; brick; steel frame.

W. Va., Morgantown.—Fair Buildings.—Morgantown Fair Association will issue \$15,000 of bonds for improvements to fair grounds, including erection of buildings.

W. Va., Parkersburg.—Lodge.—Building committee, Aerie No. 396, Fraternal Order of Eagles, M. A. Freney, chairman, received bids addressed to R. L. Gregory, secretary, until October 25 for remodeling Eagles' Home; plans and specifications on file at office of Wm. Howe Patton, architect, 720 Union Trust Bldg., Parkersburg; gas lighting; cost \$3000.

MUNICIPAL BUILDINGS

Ala., West End.—City Hall.—City will vote November 22 on issuance of \$6000 bonds for improvements to City Hall and schools. Address The Mayor.

Fla., Tampa.—Hospital.—C. E. Webb, president Board of Public Works, will receive bids until November 6 for erection of city hospital; plans and specifications on file at office of Bonfoey & Elliott, Tampa; certified check \$1000 must accompany each bid.

La., New Orleans.—Asylum.—City will probably not have plans and specifications prepared for several months for building re-

cently noted; brick structure with tile roof, to be used for temporary detention of insane pending removal to State asylum. (City Council recently noted to appropriate \$35,000 for erection and equipment.)

Md., Baltimore.—Harbor Board, Oscar F. Lackey, harbor engineer, 201 City Hall, will erect two-story office building at end of Pier No. 4, Pratt street; brick structure; 58x14 feet; electric lighting; cost \$5500; plans and construction by Harbor Board.

Okla., Bartlesville.—City Hall and Fire Station.—City voted issuance of \$40,000 bonds for erection of City Hall and \$20,000 fire-station bonds. Address The Mayor.

Okla., Blackwell.—Fire Department and Jail.—City has voted issuance of \$5000 fire department and jail bonds; lately mentioned. Address The Mayor.

Tex., Denison.—Postoffice.—Government awarded contract at \$64,700 to Fell & Ainsworth, Waco, Tex., for erection of proposed postoffice.

Tex., San Antonio.—Stadium.—City (recently noted to call for competitive plans for erection of stadium) will build oval structure; concrete; electric lighting; cost \$50,000; seating capacity 10,000.

Va., Fredericksburg.—Postoffice.—A. B. Standard Company, New York, has contract at \$46,600 for erection of postoffice at Fredericksburg. (Recently erroneously reported.)

RAILWAY STATIONS

Ala., Montgomery.—Louisville & Nashville Railroad, J. I. Montgomery, superintendent, will, it is reported, erect office building; plans being prepared; cost \$6000.

S. C., Little Mountain.—Columbia, Newberry & Laurens Railroad Co., W. G. Childs, president, Columbia, S. C., will rebuild depot recently reported burned; brick building.

Va., Danville.—Southern Railway, D. W. Lum, chief engineer, Washington, D. C., will erect station in South Danville.

Va., Norfolk.—Norfolk & Western Railroad, C. S. Churchill, chief engineer, Roanoke, Va., will erect temporary depot; estimated cost \$2500.

SCHOOLS

Ala., Ensley.—City has plans by D. O. Whildin, Birmingham, Ala., for proposed high school; machine shop, 40x60 feet. (Previously mentioned.)

Ala., Linden.—City will erect \$10,000 school; John E. Hecker, Mayor.

Ala., Mobile.—City awarded contract at \$7500 to Jett Bros., Mobile, for erection of proposed Franklin-street school; plans by Willis R. Biggers, Mobile.

Ala., West End.—City will vote November 22 on \$6000 bond issue for improvements to school and City Hall. Address The Mayor.

Ark., Little Rock.—Legislature appropriated \$160,000 to construct four agricultural high schools to cost \$40,000 each; George W. Donaghey, Governor.

D. C., Washington.—Sealed proposals will be received until November 1 for furnishing and erecting five portable school buildings; size approximately 25x39 feet; one story; with heating and ventilation complete; bidders to submit own plans and specifications, giving complete description of buildings and materials, also time within which they will furnish and erect the buildings, and price for taking down and re-erecting the buildings within one mile of original site; bond of surety company or certified check for \$100, payable to the Collector of Taxes, District of Columbia; further information desired may be obtained by addressing chief clerk, engineer department, Room 427 District Bldg., Henry B. F. Macfarland, Henry L. West, William V. Judson, Commissioners, D. C. (See "Machinery Wanted." Recently mentioned.)

Fla., Tallahassee.—Florida State College for Women will receive bids at office of F. P. Fleming, Jacksonville, Fla., until November 15 for construction of administration building and heating same; certified check for \$10,000 with each bid for construction and for \$500 with heating bid, payable to P. K. Yonge, chairman State Board of Control; plans and specifications on file at office of Edward & Waller, architects, Candler Bldg., Atlanta, Ga., after October 30, or may be had from architect on deposit of certified check for \$25,000; subcontractors may secure drawings and specifications on deposit of \$10,000. (Previously mentioned.)

Ky., Louisville.—City accepted plans by Brinton B. Davis, Louisville, for proposed \$125,000 high school; capacity more than 800 students; separate power plant.

La., Lafayette.—Lafayette parish voted special school tax. Address Police Jury.

La., Shreveport.—Hospital.—Bids addressed to Mother Columba will be received at office of Sanguinet & Staats, architects, First National Bank Bldg., Houston, Tex., for erection of four-story-and-basement hospital building for Sisters of Incarnate Word; certified check for \$1000, payable to Mother Columba; plans and specifications on file at offices of the architects at Houston, Fort Worth, San Antonio, Tex., and at St. Mary's Infirmary, Galveston, Tex., and Shreveport Sanitarium, Shreveport.

Md., Roland Park, Station L. Baltimore.—Country School for Boys, Charles-Street Ave. extended, Baltimore, has plans by Wyatt & Nolting, Keyser Bldg., for proposed school buildings north of Roland Park; administration building, 150x110 feet; cost \$75,000; wing on each side of main building, each 20x60 feet; cost \$12,000; architects' plans call for four dormitories, 98x40 feet, but present plans are to erect only two, to cost \$44,000; gymnasium in rear of main buildings, 132x62 feet; two stories; cost \$16,000.

Miss., Greenville.—City awarded contract at \$327.89 to Gus Hecker, Greenville, for erection of proposed school.

N. C., Durham.—National Religious Training School and Chataqua for Colored Race, James E. Shepard, president, is having plans prepared and will award contract in 15 days for erection of buildings lately mentioned; auditorium 135x135 feet; two stories; will also erect two dormitories; fireproof; cost of auditorium, \$25,000; cost of each dormitory, \$10,000. (See "Machinery Wanted.")

Okla., Enid.—City will vote on \$250,000 bond issue to erect high school. Address The Mayor.

Okla., Vinita.—Board of Education will receive bids addressed to Davis Hill, president, until November 13 for erection of high school and graded school; certified check for \$1000, payable to Davis Hill, president; plans and specifications on file at office of Mr. Hill, or may be obtained, together with proposal sheets, from Andrew J. Bryan, architect, McAlester, Okla., on deposit of certified check for \$50, payable to order of Davis Hill, president. (Recently mentioned.)

S. C., Columbia.—City has plans by Edwards & Walter, Atlanta, Ga., for proposed Senate Street School; cost \$40,000.

S. C., Union.—City awarded contract at \$24,000 to Elliott Contracting Co., Hickory, N. C., for erection of high school (recently mentioned); colonial style; brick and stone; steam heat; electric lights; plans by J. S. Starr, Rock Hill, S. C.

Tenn., Centerville.—City contemplates issuing bonds to erect school. Address The Mayor.

Tex., Amarillo.—City will vote November 30 on \$100,000 bond issue for school improvements. Address The Mayor.

Tex., Denton.—Directors of North Texas Normal School will receive bids until November 6 for erection of buildings; plans and specifications on file at office of M. L. Walter, architect, Fort Worth, Tex., and of school, Denton; J. T. Bottorff, secretary local board.

Tex., Galveston.—St. Patrick's Church is planning to erect \$30,000 school; Rev. Father Murphy, pastor.

Tex., Goliad.—West Texas Industrial Academy, S. E. Diggs, superintendent (recently noted to rebuild burned structures), will erect chapel and dormitory to cost \$3000; ordinary construction; Dohman Lumber Co., Goliad, contractor. (See "Machinery Wanted.")

Tex., Hereford.—City has plans and awarded contract to D. P. Kaufman & Son, Amarillo, Tex., for erection of high school, previously mentioned; cost \$25,000.

Tex., Marshall.—City voted \$50,000 of bonds to erect high school. Address The Mayor.

Tex., Mt. Pleasant.—City will vote November 27 on \$32,000 bond issue to erect two or more brick schools. Address The Mayor.

Tex., Pittsburg.—City will erect high school; main building 65x138 feet; section of building 65 feet wide projects 10 feet to front and extends 134 feet to rear; three stories, including basement; first story finished in gray brick; two upper stories in red brick trimmed in gray; to accommodate 1000; auditorium with seating capacity of 1000; fireproof; steam heat; electric lights; waterworks; sewerage systems. Address The Mayor. (Previously noted.)

Tex., Rochelle.—City will probably vote on bond issue to erect \$10,000 stone school. Address The Mayor.

Tex., San Antonio.—West Texas Military Academy has plans by J. Flood Walker, San Antonio, for proposed buildings; Old English castle style; vacuum heat; electric lights; concrete construction; fireproof; plans call for buttresses, drill squares, quad-

rangles, cliff frontage, sally port, characteristic towers at corners, etc.; site 32 acres; cost \$100,000, including \$20,000 gymnasium; Angus McDonald Crawford, principal.

THEATERS

Md., Baltimore.—C. E. Barry and Morris Laskey awarded contract for improvements to building 737 West Baltimore street to Milton C. Davis, 5 Hopkins Pl.; recently mentioned; plans by J. E. Laferty, 11 East Pleasant St.

Mo., Carondelet, Station St. Louis.—G. Berninger will erect moving-picture theater; one story; cost \$5000.

Mo., St. Louis.—Commonwealth Trust Co., through R. H. Cornell, is interested in erection of theater and office building; 172x85 feet; cost \$1,500,000.

WAREHOUSES

Ark., Pine Bluff.—Warehouse.—W. L. Toney, chairman Board of Public Affairs, will receive bids until October 25 for erection of ironclad warehouse; plans and specifications on file at office of City Engineer; usual rights reserved.

Md., Baltimore.—Columbia Paper Bag Co., 921 East Fort Ave., awarded contract to R. W. & E. Minor, 224 West Pratt St., Baltimore, for erection of storage warehouse; one story; 89x179 feet; cost \$14,000.

Md., Baltimore.—E. B. Hunting, 334 Equitable Bldg., has awarded contract to J. H. Walsh & Bros., 321 Clay St., Baltimore, for erection of warehouse; four stories; pressed brick and stone; concrete foundations; 78x80 feet; cost \$25,000.

Md., Baltimore.—D. B. Martin Company, 122 Center Market Sp., will erect warehouse southwest corner Wilkens avenue and Brunswick street.

Mo., St. Louis.—Majestic Manufacturing Co. will erect addition to warehouse; cost \$9800.

Tenn., Jellico.—Jellico Grocery Co. will erect warehouse 200x150 feet; one story; brick.

Tex., Goliad.—Farmers' Union will rebuild burned warehouse; estimated cost, \$3000.

Tex., Houston.—Scanlan estate has plans by D. H. Burnham, Chicago, Ill., for erection of warehouse previously mentioned; six stories and 11-foot basement; 118x135 feet; brick and white stone; structure corners on ship channel and will have loading wharves flush with first floor; east of building will be five storerooms one story high; contract will be awarded soon.

Va., Purcellville.—Golden & Co., Washington, Va., will erect warehouse 20x60 feet.

RAILROAD CONSTRUCTION

RAILWAYS

Ala., Bay Minette.—L. E. Ingalls of Chicago, promoter of the proposed electric railroad through this (Baldwin) county, and T. E. Fisher, contractor, of Joliet, Ill., are reported investigating the route.

Ala., Birmingham.—The Birmingham Southern Railroad is reported to have begun condemnation proceedings for extension of main line and branches between Ensley and Wylam, Ala. F. H. Crookard is vice-president and general manager and H. M. Urban chief engineer at Birmingham, Ala.

Ala., Centerville.—A. N. Belcher writes that he expects to begin building 10 miles of logging railroad from either the Seaboard Air Line or the Apalachicola Northern Railroad early in 1910.

Ala., Cullman.—The Cullman Coal & Coke Co. is making rapid progress on construction of its railroad from Cullman to Bremen, Ala., 28 miles. G. H. Ten Broek is president; John H. Bernhard, vice-president; David Branson, general manager, and George H. Parker, treasurer.

Ala., Union Springs.—Survey is reported begun for the extension of the Union Springs & Northern Railroad from Fort Davis via Milstead and Tallassee to Rockford. W. M. Blount is president at Union Springs, Ala.

Ark., Helena.—The Interurban Railway Co. of Helena has been chartered to build electric railways in the vicinity of Helena; capital \$10,000. The incorporators are E. C. Horner, president; John S. Horner and C. H. Purvis.

Ark., Hope.—Stockholders of the Gulf & Magnolia Northern Railway Co. have taken action toward building a line, and it is expected to complete it within a year. S. Q. Sevier is president; J. H. Betts, vice-president; R. L. Pritchard, secretary; J. L. Davis, treasurer.

Ark., Lonoke.—The Meto Valley Railroad is reported to have completed seven miles of

line south from McCreanor, five miles from Lonoke, on the Rock Island; M. H. Savage of Lonoke is president.

Ark., Stuttgart.—Preliminary survey is reported made for the projected railroad from Stuttgart to Hazen, Ark., promoted by Geo. C. Lewis.

D. C., Washington.—An officer of the Washington, Baltimore & Annapolis Electric Railway denies the press report that the company would acquire property in the vicinity of 13th and 14th streets and New York avenue for terminal purposes.

Ga., Darien.—The Georgia Coast & Piedmont Railway will, it is reported, submit revised plans for the bridge over the Altamaha River. A. de Sola Mendes is vice-president and general manager at Darien, Ga.

Ga., Gainesville.—The American Forest Co., Buffalo, N. Y., denies report that it is interested in a plan to build a railroad connecting Dahlonega with the Tallulah Falls Railway.

Ga., Gainesville.—An official says that the Gainesville Midland Railway has begun survey on a contemplated line of about 50 miles from Gainesville to Robertstown, Ga., with branch from Chestate to Willow, Ga.; route via Price and Murrayville. Two bridges of importance; Chattahoochee River, two spans, 135 feet each; Chestate River, 100-foot span, besides several creeks requiring 50-foot spans. Aaron Johnston is chief engineer and E. B. Eppes general manager at Gainesville, Ga.

Ky., Frankfort.—The Ohio, Kentucky & Atlantic Railroad Co. has filed incorporation papers to build from Greenup, Ky., through the Eastern Kentucky coal fields. H. S. Gould is said to be interested.

Ky., Louisville.—The Louisville & Nashville Railroad, it is reported, will spend \$6,000,000 for reducing grades and curves on the Henderson division, particularly at Empire Hill. The work will include a cut-off around Earlington. W. H. Courtenay is chief engineer at Louisville, Ky.

Ky., Louisville.—The Ohio, Kentucky & Atlantic Railroad Co. has been chartered in Delaware to operate a railroad in Kentucky; capital \$50,000. The incorporators named are J. F. Varcoe of Brooklyn, N. Y.; W. N. Akers and W. J. Maloney of Wilmington, Del.

La., Alexandria.—An officer of the Alexandria & Western Railroad is quoted as saying that it is expected to begin work about December 1 from Alexandria via Leesville to the Sabine River with a 5 per cent. grade. G. F. Cotter is president, and L. W. Sylvester, chief engineer, both at Fort Worth, Tex.

La., Eunice.—A press report quotes an officer of the Eunice, Lafayette & Abbeville Railroad Co. as saying that it is organized and has completed survey for a line of 52 miles, with seven miles of siding, from Eunice via Church Point and Lafayette to Abbeville, La. Construction may begin in January. James J. Lewis is president, and H. J. N. Green, vice-president, at Eunice, La.

La., Lake Charles.—The Anacoco Valley Railway Co., capital \$25,000, headquarters at Grabow, La., has been chartered to build a lumber line. The Galloway Lumber Co. is interested. M. M. Galloway is president and general manager; J. U. Kerr, vice-president; Marzook Galloway, Sr., secretary and treasurer. M. Galloway, Jr., is also interested.

La., New Iberia.—F. M. Welch, president of the New Iberia & Northwestern Railroad Co., is quoted as saying that five miles of line are built and that the remaining 42 miles will be completed by December 24, including two bridges. P. M. Johnston, Son & Allhands of St. Elmo, Ill., are contractors. F. M. Welch's address is Grunewald Hotel, New Orleans, La.

Miss., Chaney.—The Lamb-Fish Lumber & Land Co., it is reported, will build a railroad from Chaney to Charleston, Miss., about 30 miles. Four miles are already constructed.

Miss., Shaw.—An officer of the Shaw & Southwestern Railway is credited with saying that contract will be let this fall to build from Shaw via Busey to Greenville, Miss., 28 miles. Capital and right of way have been secured and surveys are being made. J. C. Walker of Shaw, Miss., is president, and Steven Archer, Jr., of Greenville, Miss., is engineer.

Mo., Kansas City.—Charles A. Loomis of Kansas City and others will, it is reported, incorporate a company to build an electric railway between Kansas City and St. Louis, about 295 miles; capital, \$500,000. Capitalists in each city are interested; also others in Denver.

N. C., Lumberton.—An election is called for November 26 to vote on a proposed bond issue in aid of the South Atlantic Transcontinental Railroad, of which S. A. Jones, Waynesville, N. C., is president.

N. C., Winston-Salem.—The Winston-Salem Southbound Railroad Co. is reported to have changed its route over the Yadkin River and will need a bridge 1250 feet long at Whitney. O. H. P. Cornell is chief engineer at Winston-Salem, N. C.

Okla., Calvin.—The Missouri, Oklahoma & Gulf Railway, according to a report quoting an officer, has laid 165 miles of track, and grading contracts are let to J. W. Hoffman & Co. of Tupelo, Okla., for the extension from Calvin toward Sherman and Denison, Tex. The Wisconsin Bridge & Iron Co., Milwaukee, Wis., has contract for eight steel bridges.

Okla., Lawton.—The Lawton & Fort Sill Electric Railroad Co. has been chartered to build a line 20 miles long from Lawton to Fort Sill; capital \$200,000; estimated cost \$140,000. The incorporators are Simon Smith of Oklahoma City, W. H. Pattle, D. L. Sleeper and J. H. Miller of Tulsa, Okla., and J. B. Sleeper of Lawton, Okla.

Okla., Mangum.—The Southwestern Interurban Railroad Co. is surveying for an electric railway to connect Mangum, Granite, Altus, Blair, Hollis, Vinson, Reed and Cordell, 22 miles. J. W. Solomon of Reed, Okla., is president; H. M. Ferguson of Mangum, Okla., vice-president; J. C. McCollister, secretary.

Okla., Miami.—An official of the Oklahoma, Kansas & Missouri Interurban Railway Co. is reported as saying that surveys have been made and plans filed for the proposed line from Miami, Okla., via Hattontville, Quapaw, Wintontville and Peoria to Harnett, Mo., and thence via Spring City to Joplin, 35 miles. Between Miami and Hattontville five miles of track has been laid, and it is expected to begin work on the rest as soon as financing is completed, in about two months. Two bridges and two trestles will be required. Franklin M. Smith is president and general manager, and W. H. Schreiber is chief engineer at Miami, Okla.

Okla., Nowata.—The Coffeyville & Nowata Railway & Power Co. has been chartered to build 25 miles of line between Nowata, Okla., and Coffeyville, Kans.; capital \$100,000. The incorporators are J. C. Denton, W. V. Thraves and J. A. Tillotson of Nowata, Okla.; John B. Pollard and W. P. Brown of Coffeyville, Kans.

Okla., Oklahoma City.—T. H. Webb of Oklahoma City is reported given the contract by the Missouri, Kansas & Texas Railway to build connection from the main line to the packing-house belt line. Contract will soon be let for the industrial company's belt line.

S. C., Spartanburg.—The Carolina, Clinchfield & Ohio Railroad, says a dispatch, has completed its extension from Hostle, N. C., to Spartanburg, making the line 240 miles long from Dante, Va., to Spartanburg, S. C.

Tex., Brownwood.—The Brownwood Commercial Club has started a movement to build a north-and-south railroad.

Tex., Bryan.—A mass-meeting of citizens has resolved to organize a company to build a railroad from Bryan to Fountain, six miles, connecting there with the International & Great Northern Railroad; thence over the Brazos River at Pitts Bridge and through the levee district. H. O. Boatwright, G. S. Parker, R. S. Webb, E. H. Austin and W. E. Saunders are among those interested.

Tex., Crystal City.—The Crystal City & Uvalde Railroad contemplates an extension from Uvalde to Carrizo Springs, 14 miles. The line from Uvalde to Crystal City, about 40 miles, is now three-fourths completed and will be finished within 10 days. A. R. Ponder of Uvalde is president.

Tex., Dalhart.—An officer of the Enid, Ochiltree & Western Railway is reported as saying that about 35 miles of grade has been completed and tracklaying has begun. Route is from Dalhart southeast to Dumas, Parksedale and Hansford. W. R. Allen is chief engineer at Dalhart, Tex.

Tex., Eastland.—The Eastland, Rising Star & Southern Railway Co., originally proposing to build from Eastland to Rising Star, 27 miles, has amended its charter to build from the north boundary of Stephens county to Breckenridge, Eastland, Carbon, Rising Star and Brownwood, Tex., 97 miles.

Tex., Keltys.—The Angelina & Neches River Railroad, built by the Angelina County Lumber Co., is reported operating from Keltys to the Angelina River, 20 miles, and contract is reported let to build across the river for several miles from the present end of line at Ratcliffe Bluffs. It is also reported that an extension will be built north toward Chireno. J. H. Kurth is president at Keltys, Tex.

Tex., Paris.—The Texas Union Traction Co., chartered some time ago to build electric railways, contemplates building from

Paris to Ennis, 124 miles; Paris to Cleburne, 155 miles; Texarkana to Sherman, 154 miles; Texarkana to Fort Worth, 215 miles, all in Texas. It may also build branches for 20 miles from the main line, and may first construct one from Paris to Deport. C. P. Moore of Longfellow, Tex., is president; A. A. St. John, vice-president; John T. Upchurch of Clarksville, Tex., secretary and treasurer.

Tex., Rotan.—A press report says that the Texas Central Railroad is considering a proposition to build an extension from Rotan. C. Hamilton is vice-president and general manager and H. S. McCall resident engineer at Waco, Tex.

Tex., Sugarland.—An officer of the Sugarland Railway confirms the report that a small piece of track has been bought near Anchor, Tex., and says that some time a connection may be built; at present it cannot be stated when the work will be completed.

Tex., Temple.—Reported that the Santa Fe will rebuild its interlocking plant at Temple. C. F. W. Felt is chief engineer at Galveston, Tex.

Tex., Waco.—The Young Men's Business League of Waco has started a movement to build the Waco, Belton & Georgetown Railroad, and charter will be applied for. Survey partly made and some right of way secured. E. Rotan, S. P. Brooks, J. C. Dillard, W. D. Lacy and others of Waco are interested.

W. Va., Evenwood.—T. W. Raine, president, is reported as saying that the Sewell Valley Railroad Co. has finished 8 miles of line, while 11 more miles are graded and will be completed by December 31. Survey will be made for an extension from Raine through Nicholas county to connect with the Baltimore & Ohio Railroad. Altogether, the company will build between 80 and 100 miles of line.

W. Va., Fairmont.—The Fairmont & Clarksburg Traction Co. has completed its extension to Bridgeport.

STREET RAILWAYS

Ark., Jonesboro.—Preston Hatcher of the Home Telephone Co. has applied for a street-railway franchise, including a suburban line to Nettleton, three miles. Various capitalists are interested.

Mo., St. Louis.—E. G. Lewis, Mayor of University City, will, it is reported, submit a plan to commercial and civic organization for building a subway system for railways in St. Louis, one main line to run east and west and the other north and south, at a cost of about \$1,000,000 a mile, or a total of \$16,000,000.

N. C., Concord.—The Piedmont Street Railway is reported to have let contract to W. A. Foll of Concord for grading in the city, the line to run from Salisbury to Concord via China Grove and Landis. T. H. Vanderford of Salisbury, N. C., and others are interested.

N. C., Hendersonville.—The Hendersonville Light & Power Co., it is said, will build four and one-half miles of electric railway from Hendersonville to Parcola Lake. C. H. Broward is superintendent.

N. C., Raleigh.—The Raleigh Street Railway Co., it is reported, will double-track its line to the Fair grounds.

Okla., Fairfax.—The Osage Western Railroad Co., which proposes to build immediately from Pawhuska eastward to a connection with the Missouri, Kansas & Texas Railway and westerly to Enid, Okla., has elected directors thus: R. H. Hoss of Fairfax, president; Clarence Walters of Muskogee, vice-president and general manager; L. A. Wisemeyer of Fairfax, secretary and treasurer; C. E. Vandervoort of Pawhuska, J. M. Moody of Fairfax, Fred Balduff of Bliss and C. E. Bush of Tulsa, Okla. E. J. Noonan, engineer, has begun survey.

S. C., Charleston.—The Charleston Consolidated Company contemplates building two important extensions. P. H. Gadsden is president.

Tenn., Chattanooga.—The Chattanooga Railway & Light Co. has filed a mortgage securing \$15,000,000 of bonds, of which \$10,000,000 will be reserved for extensions, betterments and permanent improvements. Several important extensions are contemplated. G. E. Miller is superintendent.

Tex., Plainview.—The Pecos & Northern Texas Railroad Co. has completed its line from Plainview to Lubbock, Tex., about 38 miles.

Tex., San Antonio.—The Southern Pacific Railway, it is reported, proposes to spend \$100,000 for an addition to its passenger station. A. V. Kellogg is engineer maintenance of way at Houston, Tex.

Va., Richmond.—The Richmond & Henrico

Railway Co. has awarded contract through the Blake Construction Co. of New York to W. O. Burton of Richmond to build the Marshall-street viaduct and the railroad to cross it, all to be completed by July 1 next; viaduct about half a mile long.

Va., Richmond.—The Virginia Railway & Power Co. contemplates constructing a viaduct to Church Hill and also make an extension. Wm. Northrop is president.

W. Va., Grafton.—The Grafton Traction Co. contemplates building next year an extension of three miles to Grafton Park, including a bridge over Tygart River.

MACHINERY, PROPOSALS AND SUPPLIES WANTED

Manufacturers and others in need of machinery or supplies of any kind are requested to consult our advertising columns, and if they cannot find just what they wish, if they will send us particulars as to the kind of machinery or supplies needed we will make their wants known free of cost, and in this way secure the attention of manufacturers and dealers throughout the country. The Manufacturers' Record has received during the week the following particulars as to machinery and supplies wanted.

Automobile Supplies.—See "Carriage Supplies."

Balloons.—Oscar E. Baynard, 1005 Atlantic National Bank Bldg., Jacksonville, Fla., wants addresses of balloon manufacturers. (Not toy balloons.)

Bank Fixtures.—Chas. W. Dann, Kissimmee, Fla., wants bank fixtures.

Bank Fixtures.—George L. Van Cleave, Caddo Mills, Tex., wants bank fixtures, including safe, vault, etc.

Boiler.—D. H. Greene, Oriental, N. C., wants stationary tubular boiler; about 150 horse-power; good for at least 110 pounds steam; good second-hand condition.

Boiler.—Columbus Equipment Co., Columbus, Ohio, wants 250-horse-power Scotch marine boiler.

Bolt and Rivet Machinery.—O. S. J., care Manufacturers' Record, Baltimore, Md., wants data and estimates on small plant to manufacture bolts and rivets.

Building Materials.—E. D. Gray, 1208 Fourteenth Ave., Tampa, Fla., wants prices on hardwood doors, blinds and sash, hardware, nails, lime and bricks.

Building Supplies.—Pickens County Lumber Co., F. E. Park, Gadsden, Miss., will need cement, roofing, sash, doors, etc.

Building Supplies.—Herd Plumbing Co., Morgantown, W. Va., wants prices on building supplies of interest to plumbers and general contractors.

Candy Machinery.—C. C. MacKee Company, Hongkong, China, wants catalogues, illustrations, export prices, etc., on candy-making machinery, preparatory and finishing equipment, forms, etc.

Carriage Supplies.—Emilio de Los Rios, Apartado 2523, Mexico City, wants catalogues, prices, discounts, etc., on carriage and automobile supplies, such as wheels, spokes, rims, hubs, bows, shafts, axles, nuts, screws, lamps, leather, oilcloth, rubber mats, etc.

Cars.—Cincinnati Equipment Co., 916 Pennsylvania Bldg., Philadelphia, Pa., wants 30 24-inch two-way steel dump cars.

Cars.—Pennsylvania Equipment Co., 1209 West End Trust Bldg., Broad and South Penn Square, Philadelphia, Pa., wants several 24-inch gauge flat cars and contractors' dump cars.

Cement.—See "Miscellaneous Supplies."

Cement.—See "Building Supplies."

Cement.—James E. Shepard, Durham, N. C., wants prices on cement.

Cereals Machinery.—See "Flouring Machinery."

Column Machinery.—M. V. Montgomery, Celina, Tenn., wants to correspond with manufacturers of colonial-column machinery.

Concrete Dock.—Attention of steel and concrete contractors is called to contemplated construction at Cristobal, Canal Zone, of permanent steel and concrete dock 1350 feet long. Information regarding proposed construction may be had on application to Assistant Purchasing Officer, Panama Railroad Co., 24 State St., New York.

Concrete Mixers.—See "Miscellaneous Supplies."

Crane.—Stratton & Bragg Company, Petersburg, Va., wants 10-ton hand-power traveling crane; 25-foot span; second-hand; would consider larger crane to be cut down.

Crane.—See "Steam Shovel."

Cranes.—Pennsylvania Equipment Co., 1209 West End Trust Bldg., Broad and South Penn Square, Philadelphia, Pa., wants two standard-gauge locomotive cranes; 20 to 25 tons capacity; immediate delivery.

Drainage.—J. E. Berry, chairman Drainage Commission, Liberty, Tex., will receive bids until December 1 for excavating ditches and building bridges and culverts in Old River Drainage District; work will consist of excavating approximately 510,000 cubic yards of earth and necessary bridges and culverts for crossing ditches; plans and specifications on file at office of I. B. Simmons, County Judge, and at office of Drainage Engineer, Room 204 Commercial National Bank Bldg., Houston, Tex.; sealed bids must be endorsed "Proposals for Excavating Ditches and Building Bridges," and addressed to J. E. Berry, chairman of Drainage Commissioners of Old River Drainage District of Liberty County No. 1; proposals must be accompanied by certified check for 5 per cent. of amount bid, payable to Chairman Drainage District.

Dredging.—Sealed proposals, indorsed "Proposals for Dredging," will be received at Bureau of Yards and Docks, R. C. Hollyday, chief, Navy Department, Washington, D. C., until November 20, 1909, for dredging at Navy-yard, Charleston, S. C. Plans and specifications can be obtained on application to bureau or to commandant of navy-yard named.

Drill.—Model Printing Co., 507 E. St. N. W., Washington, D. C., wants prices on S. H. upright power drill.

Drying Machine.—W. T. Steagall, secretary Aransas Pass Pressed Brick & Shingle Co., Aransas Pass, Tex., wants machine for drying sand.

Electrical Machinery.—See "Heating Plant, etc."

Electrical Machinery.—National Machinery & Wrecking Co., 1914 Scranton road, Cleveland, O., wants second-hand 75 or 100-kilowatt compound-wound 250-volt Westinghouse generator; direct connected preferred.

Electrical Machinery.—Sealed proposals, endorsed "Proposals for Generating Set," will be received at Bureau of Yards and Docks, Navy Department, Washington, D. C., until November 20 for 75-kilowatt engine-driven generating set. Plans and specifications can be obtained on application to bureau; R. C. Hollyday, chief.

Electric Lamps.—See "Miscellaneous Supplies."

Electrical Machinery.—Model Printing Co., 507 E. St. N. W., Washington, D. C., wants prices on 1/4 horse-power motor.

Elevator (Grain) Machinery.—Arkadelphia Milling Co., J. M. Adams, president, Arkadelphia, Ark., will want machinery for grain elevator.

Elevators.—A. P. Reich, manager Hotel Printup, Gadsden, Ala., wants prices on elevators.

Engines.—Columbus Equipment Co., Columbus, Ohio, wants two 1000-horse-power Corliss engines for rolling mill.

Engineering Instruments.—Thos. B. McLaughlin, Central Ansonia Sugar Co., Azua, Santo Domingo, wants to correspond with manufacturers of or dealers in miners' dip needles or divining rods.

Flour-mill Machinery.—Nicolas Georgiades, Constantinople, Turkey, wants data and prices on flour-mill machinery.

Flouring Machinery.—Arkadelphia Milling Co., J. M. Adams, president, Arkadelphia, Ark., will want machinery for flour mill, cereal mill and grain elevator.

Gasoline Engine.—See "Heating Plant," etc.

Glass Bottles.—El Reno Alfalfa Milling Co., El Reno, Okla., wants glass bottles or tubes for mailing feed samples.

Hardware.—See "Carriage Supplies."

Heating Plant.—John M. Welch, Sparta, Tenn., wants heating plant for \$6000 church edifice.

Heating Plant.—Henry B. F. Macfarland, Henry L. West and William V. Judson, Commissioners, Washington, D. C., will receive bids until November 1 for erection of five portable schools with heating and ventilating, complete. (See "Schools.")

Heating Plant, etc.—Sealed proposals will be received until November 17 for following: Heating plant, consisting of boiler-room equipment and heating pipes and radiation, etc.; engine, generator, switchboard and electric wiring and fixtures, etc., for lighting campus; gasoline engine. Above is to heat and light trades building and auditorium

building on campus of Kentucky Normal and Industrial Institute, Frankfort, Ky.; proposals received only on materials furnished and erected in place; plans and specifications may be seen at office of State Superintendent of Public Instruction, Frankfort, and of Anderson & Frankel, engineers, Lexington, Ky. All proposals must be accompanied by certified check of 2 per cent. of amount of contract price, payable to board of regents of Kentucky Normal and Industrial Institute, as guaranty that successful bidder will enter into contract and give good security in amount equal to 40 per cent. of contract price. All bids must be sealed and addressed to board of regents, care of Anderson & Frankel, engineers, Lexington, Ky.

Hoist.—W. T. Steagall, secretary Aransas Pass Pressed Brick & Shingle Co., Aransas Pass, Tex., wants hoist for unloading barges.

Hoisting Engines.—Pennsylvania Equipment Co., 1209 West End Trust Bldg., Broad and South Penn Square, Philadelphia, Pa., in market for double-drum double-cylinder hoisting engine, size 7x9 inches, or something that would develop about same horse-power; Wisconsin delivery.

Ice Machinery.—Hill County Cotton Oil Co., Hillsboro, Tex., wants 40-ton ice plant.

Incline Railway.—South African Supply Co., Wm. A. Haygood, Box 1430, 54 Long St., Cape Town, Africa, wants to correspond with engineers who will be interested in proposition for constructing and operating incline railway.

Interior Decoration.—A. P. Reich, manager Printup Hotel, Gadsden, Ala., wants prices on interior lobby work.

Lathe.—E. E. Jackson Lumber Co., Ridgely, Ala., wants second-hand McCabe double-spindle lathe, to swing from 48 inches down.

Levee Construction.—Atchafalaya Basin Levee District Commissioners, Port Allen, La., will receive sealed proposals at office of Board of State Engineers, 402 Cotton Exchange Bldg., New Orleans, La., until November 3 for construction of Highland levee, West Baton Rouge parish, Mississippi River, right bank; new levee; approximate contents 50,000 cubic yards; deposit required, \$300; bond required, \$4500; cash or certified check to amount named as deposit must accompany each proposal; right to reject any or all proposals; information as to location, character of work, terms of payment, manner of submitting proposal, execution of contract and bond, time of beginning and completing of work and blank forms for submitting proposals on application to Board of State Engineers at New Orleans, La., or to A. V. Dubroca, secretary, and V. M. Lefebvre, president Atchafalaya Commissioners, Port Allen.

Locomotives.—Pennsylvania Equipment Co., 1209 West End Trust Bldg., Broad and South Penn Square, Philadelphia, Pa., wants two or three 24-inch gauge locomotives.

Locomotive.—Box 265, Rocky Mount, N. C., wants one six or eight ton logging locomotive.

Lumber.—James E. Shepard, Durham, N. C., wants prices on lumber.

Lumber.—G. Elias & Bro., 965 Elk St., Buffalo, N. Y., want several carloads 2 1/2 by 8 to 10-inch by 12, 14 and 16-foot first and second basswood.

Lumber.—Crystal Block Coal Co., Louisa, Ky., wants carload or more medium grade pine lumber.

Match Machinery.—R. A. Dunlop, care of Richmond Chamber of Commerce, Box 51, Richmond, Va., wants addresses of manufacturers of machinery for making ordinary and wax matches.

Metal Casings.—J. Mendelsohn, Lodz, Russia, want soldered metal casings for dyeing yarns upon capsules, cross spools and spools with metal cones.

Metal Shears.—C. C. MacKee Company, Hongkong, China, wants catalogues, illustrations, export prices, etc., on shears for cutting scrap metal, boiler plate, etc., up to seven-eighths inch thick; does not want drop shear; wants shear constructed on principle of blade-closing as in a pocket knife, with material to be sheared ranging from five or six inches wide up to 30 inches.

Metals.—Hugh Woods, 1802 Third Ave., Louisville, Ky., wants prices on fancy metals for manufacture of talcum boxes, etc.

Miscellaneous Supplies.—Columbia Cotton Oil & Provision Corporation wants Portland cement, rosin, fuller's earth, caustic of soda, calcium chloride, anhydrous ammonia, salt, tubs, 50-60-pound and 3-50-pound lard pails, tierces (new and second-hand), barrel hoops, glue, paste paints, barrel bungs, bung gaskets, brooms, scrubbing brushes, floor scrubbers, water and steam hose, fire pails, shovels, picks, crowbars, wheelbar-

rows, concrete mixers, cotton waste, incandescent lamps (250 volts), splices (new and second-hand), burlap bags (100 to 200 pounds), twine, wood skewers, barrel staves, heading, lagging, belting and belt fasteners. Address C. L. Heath, master mechanic and purchasing agent, 510 Metropolitan Bank Bldg., Washington, D. C.

Oil Mill.—Jno. C. Webb & Sons, Demopolis, Ala., want bids on 60-ton cotton-oil mill, to be completed by August 1, 1910.

Paper-cone Machinery.—Elmer C. Westall, Wilson, N. C., wants to correspond with manufacturers of machinery for making paper cones for cotton mills.

Paper Cutter.—Model Printing Co., 507 E. St. N. W., Washington, D. C., wants prices on 38-inch automatic paper cutter.

Paving.—D. F. La Prade, City Engineer, Room No. 17 Leader Bldg., Manchester, Va., opened bids October 26 for laying concrete curbing, guttering and flat sidewalk paving about 4500 square yards of concrete work or its equivalent of curbing, with privilege of increasing or diminishing same; specifications and blank form may be obtained at office of engineer; proposals will also be received at same time for brick sidewalk pavements; usual rights reserved.

Paving.—J. J. Hayes, Mayor, Vicksburg, Miss., will receive bids until November 1 for paving North 1st street between Grove and Clay streets with vitrified brick, bitulithic, asphalt, mineral rubber and granitoid; all bids must be accompanied by names of sureties proposed to be given by bidder upon his bond for faithful execution of contract.

Paving.—J. B. Winslett, City Secretary, Dallas, Tex., will receive bids until November 5 for construction of Highland street and Cedar Springs avenue from northwest line of McKinney avenue, on Highland street, to Cedar Springs avenue; thence along Cedar Springs avenue to Argyle street. Each bidder shall bid separately on following materials: bitulithic pavement on concrete foundation; bitulithic pavement on bituminous foundation; rock asphalt on concrete base; concrete curb; concrete gutter; combination concrete curb and gutter; vitrified brick; vitrified-brick paving blocks. Each bidder shall bid according to terms of specifications and shall separately bid as provided by said specifications on cost of said pavements with a maintenance bond for a term of years and cost of said pavement without a maintenance bond, as is prescribed by specifications. All bidders are cautioned to specially read specifications and bid upon materials therein named and in manner therein provided; city reserves right to reject any or all bids; that with each bid there shall be deposited certified check in sum of \$2100, which shall be retained by city of Dallas until successful bidder has entered into contract with city; all unsuccessful bidders' deposits shall be returned to them upon awarding of contract to successful bidder; in event said successful bidder shall fail or refuse to sign said contract and perform work after award is made, said deposit or certified check shall be retained by and become the property of city; specifications are on file in the said office; proposals for this improvement shall stipulate time that surface of entire street shall be completed from end to end and all debris removed and said street open to traffic.

Petroleum.—Nicolas Georgiades, Constantinople, Turkey, wants addresses of petroleum exporters.

Piping.—See "Government and State Buildings" under Mo., Mt. Vernon.

Pumping Plant, Pipe-cutting Machines, etc. Sealed proposals will be received at office of General Purchasing Officer, Isthmian Canal Commission, Washington, D. C., until November 12 for pumping plant, pipe-cutting machines, steel tubing, etc.; blanks and general information relating to Circular No. 542 may be obtained from assistant purchasing agents, 24 State street, New York; 55 National Realty Building, New Orleans; 1086 North Point street, San Francisco, Cal.; also from U. S. Engineer office in following cities: Seattle, Wash.; Los Angeles, Cal.; Baltimore, Philadelphia, Pittsburgh, Boston, Buffalo, Cleveland, Cincinnati, St. Paul, Detroit, Milwaukee, Chicago, St. Louis, Chattanooga, Louisville, Mobile and Galveston; Commercial Club, Kansas City; Chamber of Commerce, Quincy, Ill., and Chamber of Commerce and Board of Trade, Tacoma, Wash.; F. C. Boggs, Captain, Corps of Engineers, U. S. A., General Purchasing Officer.

Punch and Shears.—Pennsylvania Equipment Co., 1209 West End Trust Bldg., Broad St. and South Penn Sq., Philadelphia, Pa., wants double punch and shears; 42-inch gap; capacity, 1½-inch holes in 1-inch plate, to shear 1¼-inch plate; quick delivery; name trade and dealer's prices.

Punches.—Proposals will be received at Bureau of Supplies and Accounts, Navy Department, Washington, D. C., until November 2 to furnish at navy-yard, Charleston, S. C., screw and lever punches and hydraulic jacks. Applications for proposals refer to Schedule 1813. Blank proposals furnished on application to navy pay office, Charleston, S. C., or to bureau. E. B. Rogers, Paymaster-General, U. S. N.

Quarrying Machinery, etc.—Mex-Tex Marble Co., 708 Gibbs Bldg., San Antonio, Tex., will want complete installation of quarrying and finishing machinery.

Refrigerators, Beds, etc.—Bids will be received at office of General Purchasing Officer, Isthmian Canal Commission, Washington, D. C., until November 5 for beds, chairs, refrigerators, clothes hampers, etc. Blanks and general information relating to Circular No. 541 may be obtained at above office or office of assistant purchasing agents, 24 State St., New York; custom-house, New Orleans; 1086 North Point St., San Francisco, Cal.; also from U. S. Engineer office in following cities: Seattle, Wash.; Los Angeles, Cal.; Baltimore, Philadelphia, Pittsburgh, Boston, Buffalo, Cleveland, Cincinnati, St. Paul, Detroit, Milwaukee, Chicago, St. Louis, Chattanooga, Louisville, Mobile and Galveston; Commercial Club, Kansas City; Chamber of Commerce, Quincy, Ill., and Chamber of Commerce and Board of Trade, Tacoma, Wash.; F. C. Boggs, Captain, Corps of Engineers, U. S. A., General Purchasing Officer.

Reinforced Concrete.—James E. Shepard, Durham, N. C., wants to correspond with reinforced-concrete contractors.

Road Machinery.—Board of Trade, H. M. Magle, secretary, First National Bank Bldg., Waynesboro, Va., will award contract about November 1 on following: 10-ton steam roller, wheel scraper, 25-horse-power traction engine, road machine, 12x26-inch 200-ton 25-horse-power jaw crusher, battery for blasting, two steam drills (Ingersoll or Rand), four dump boxes, four dump carts, six sets double harness, four sets single harness, sprinkler, 12-horse-power vertical steam boiler, 24 steel-tray wheelbarrows, 50 picks and handles, 50 steel dirt shovels, six 6-foot crowbars. Bidders state makers' names, give catalogue number and submit with bids complete set of makers' catalogues with articles marked; delivery by November 29; give prices f. o. b. Basic City, Va.

Road Roller.—Palm Beach County Commissioners, W. H. Da Camara, chairman, West Palm Beach, Fla., will want steam or gasoline road roller.

Roofing.—See "Building Supplies." Rubber Shoes.—Nicolas Georgiades, Constantinople, Turkey, wants addresses of rubber-shoe manufacturers.

Sawmill.—J. O. Brown, Bedford City, Va., wants second-hand short sawmill to cut 1000 feet about eight-foot logs, not more than eight inches in diameter.

Sawmill.—Alliceville Lumber Co., Alliceville, Ala., wants prices on complete equipment for planing mill, including twin engine feed. (Second-hand preferred.)

Sewer.—Bob Parman, City Clerk, Oklahoma City, Okla., will receive bids until November 8 for construction of Broadway storm sewer, which commences at intersection of 18th street and Broadway and ends at point on 30th street 50 feet north of section line, and Walker-avenue storm sewer, consisting of two branches, one commencing at intersection of 30th street and Dewey avenue and other at intersection of 22d street and Ollie avenue, two branches joining at 24th street and Dewey avenue, and sewer ends at a point 44 feet north of southwest corner of 30th street and Hudson avenue in Oklahoma City, according to plans and specifications now on file in office of City Clerk; each bid must be accompanied by certified check of 3 per cent. of amount bid, to be forfeited to the city in case successful bidder fails to enter into contract and give required bond within required time; contractor will be required to give bond in sum of 20 per cent. of contract price for faithful performance of said work and holding of city harmless from any and all damages which might occur.

Sewer Construction.—City of Trenton, Tenn., will receive bids until November 5 for construction of system of sanitary sewers; system comprises about 35,000 feet of vitrified sewers from 8 to 18 inches in diameter, manholes, flush tanks, etc.; plans and specifications on file at office of Town Council of Trenton and at office of J. A. Ormberg, Room 608 Goodwyn Institute Bldg., Memphis, Tenn.; bids must be enclosed in sealed envelopes addressed to Town Council of Trenton and endorsed "sewer bids;" bids must be accompanied by certified check for \$500, payable to Town Council; usual rights reserved.

Showcase Manufacturers.—D. M. Baldwin, Jonesboro, Ark., wants to arrange for manufacture of patent showcase.

Steam Shovel.—W. T. Steagall, secretary Aransas Pass Pressed Brick & Shingle Co., Aransas Pass, Tex., wants crane and steam sand shovel to load sand on barges.

Steel Framings.—James E. Shepard, Durham, N. C., wants prices on steel framings.

Steel Piles.—State Convict Bureau, J. Craig Smith, president, Montgomery, Ala., in market for 450 lengths steel interlocking piles; each 12 feet long; for dam construction.

Structural Steel.—C. D. Smith, Albany, Ga., wants steel work for roof for \$35,000 courthouse at Palatka, Fla.

Textile Products.—Nicolas Georgiades, Constantinople, Turkey, wants addresses of manufacturers of cotton goods, woven fabrics, etc.

Tin Boxes, etc.—Hugh Woods, 1802 Third Ave., Louisville, Ky., wants names of manufacturers (other than trust) of talcum boxes, etc.

Trucks.—Model Printing Co., 507 E. St. N. W., Washington, D. C., wants prices on six low-wheeled trucks; about 30x44 inches.

Type.—S. E. Diggs, superintendent West Texas Industrial Academy, Goliad, Tex., wants type for Washington hand press.

Ventilating.—See "Heating Plant."

Water-works.—Board of Commissioners, Waterworks Improvement District No. 1, Dumas, Ark., will receive bids until November 10 for construction of water-works sys-

tem; approximately 6-inch well, 4000 feet 2-inch pipe, 6000 feet 4-inch pipe, 1½ tons specials; pumphouse, pumps, valves fittings, etc.; each bid must be accompanied by certified check for \$300, payable to Gus Waterman, treasurer; plans and specifications on file at office of Commissioners or at office of engineers, Lund & Hill, Little Rock, Ark.

Well Drilling.—C. T. Darby, Mayor, Conroe, Tex., will receive bids until November 4 for sinking artesian well not less than four inches; contractor to furnish everything, including pipe, and to guarantee a flowing well; all bids to be made out to C. T. Darby, Mayor, and must be accompanied by a certified check in the sum of \$250, made payable to him, as a guarantee that in event contract is awarded bidder will enter into contract and make satisfactory bond for same within five days after such award.

Well-drilling Machinery.—Merchants and Business Men's Association, J. F. Boyd, secretary, 116 North Pearl street, Mart, Tex., wants to correspond with manufacturers of well-drilling machinery; well 2000 to 3500 feet deep.

Wheelbarrows.—See "Miscellaneous Supplies."

Woodworking Machinery.—See "Column Machinery."

Woodworking Machinery.—Frank Wright, Cave Springs, Ga., wants medium-size planer and matcher and treacle cut-off saw.

Woodworking Machinery.—L. F. Seyfert's Sons, 437, 439 and 441 North 3d St., Philadelphia, Pa., wants 36-inch single surfacer.

INDUSTRIAL NEWS OF INTEREST

Western Electric Co. News.

Guy H. Gibbs, who has been with the Westinghouse Electric & Manufacturing Co. for the past eight years, four of which have been with that company's Cincinnati office, is now with the Western Electric Co. at Cincinnati.

Waterproof Pressed Bricks.

The Moistproof Pressed Brick Co. of Norfolk, Va., has about completed its plant and will begin manufacturing next week. Its output will be waterproof or moistproof pressed bricks in two colors—buff or deep dark red. An equipment has been installed for a daily output of 50,000 bricks.

Farm and Timber Land.

Announcement is made that 506 acres of farm and timber land near Newbern will be offered at public auction on November 15. This tract contains 200 acres of woodland estimated to hold 1,000,000 feet of timber, 250 acres of cleared land, and 50 or 60 acres of swamp and low lands. For details address C. Whittle Sams, 272 Main St., Norfolk, Va., or S. R. Street, auctioneer, Newbern, N. C.

Ice Plant Offered.

An opportunity for the purchase of an ice plant is offered by W. Burns Trundle, John P. O'Ferrall, Leigh Bousal and Edgar Ziehl, receivers of the Baltimore Plate Ice Co. The plant is located at 7-13 South Frederick street, Baltimore, Md., and will be offered on November 11. It consists of building, ice-making equipment, etc., in active operation. Pattison & Gahan are the auctioneers.

Opens Office in Chicago.

The New Jersey Car Spring & Rubber Co. of Jersey City, N. J., announces that it has opened an office and salesroom at 1337 Michigan avenue, Chicago, Ill., with C. G. Race in charge. This arrangement will enable the company to carry a complete stock of its numerous mechanical rubber goods for the convenience of its customers in the Middle West. Among its other products the company will carry its new Carpringco automobile tire in all the different sizes in its Chicago stock.

For Southwest Homeseekers.

Among other causes increasing land values are inducing the city man to seek suburbs and farm and the farmer to seek new locations. For the purpose of bringing the manifold advantages of the Southwest to the attention of prospective homeseekers S. G. Langston, 315 Wainwright Bldg., St. Louis, Mo., publishes a monthly real-estate bulletin, which he will supply upon application. Mr. Langston is also distributing a folder showing a map of the Missouri, Kansas & Texas Railway system traversing the Southwest, which contains schedules, rates and other information.

The Milwaukee Corrugating Co.

The Milwaukee Corrugating Co. states that a patent decision in its favor has been af-

firmed by the United States Circuit Court of Appeals. This suit was for infringement of patent No. 540584 for "sheet-metal elbow and process of making same," of June 4, 1895. On final hearing, January 6, 1908, Circuit Judge Seaman ordered the bill dismissed for want of equity. This decision was appealed to the United States Circuit Court of Appeals for the Seventh Circuit, which affirmed the decision made by the United States Circuit Court, Eastern District of Wisconsin. The officers of the Milwaukee Corrugating Co. include Louis Kuehn, president, and August J. Luedke, secretary; offices at 76 South Bay St., Milwaukee, Wis.

Stone & Webster Activities.

The General Electric Co. of Schenectady, N. Y., has engaged the Stone & Webster Engineering Corporation of Boston to construct a reinforced concrete shop building, to be a part of the Schenectady works. The plans are not yet completed, but the general dimensions are 80x400 feet. Extensive alterations in the steam and water power plants of the Watcom County Railway & Light Co., Bellingham, Wash., are to be made by the Stone & Webster Engineering Corporation. In the Nooksack Falls water-power plant an impulse wheel will be substituted for the present 3300-horse-power Francis turbine. The steam plant, known as the York street station, will be enlarged to accommodate a new 1500-kilowatt turbo-generator, with boilers, condensers and other steam and electrical auxiliaries.

TRADE LITERATURE.

Interesting Portland Cement Publication.

The adaptability of Portland cement for construction of various kinds is exhibited in a 128-page book issued by the Wm. G. Hartman Cement Co., Philadelphia, Pa., sole selling agent for Old Dominion Portland cement manufactured by the Virginia Portland Cement Co., Fordwick, Va. The volume contains 103 views of work of a widely diversified character in which Old Dominion Portland cement was used wholly or in part. Each view is accompanied by descriptive data. One of the full-page illustrations is the plant at Fordwick, where the company owns 1200 acres of land containing large deposits of limestone and shale. The plant was established in 1900 with an annual capacity of 250,000 barrels of cement, but has been increased to 1,000,000 barrels. It has a storage capacity of 170,000 barrels of finished cement and 25,000 barrels of clinker. The shipping capacity is 5000 barrels a day. Other illustrations are types of reinforced concrete bridges; reinforced concrete chimneys erected in Richmond, Atlanta, Carrollton and Birmingham; cement stucco houses, reinforced concrete houses and hollow concrete-block houses, and sidewalks, steps, terraces and copings. Washington is a large user of Old Dominion Portland cement, a statement being made that the city consumes 100,000 barrels annually, and a

number of structures in which it has been used are illustrated. The adaptability of cement for dry-dock construction is shown in the view of dry-dock No. 3 of the Newport News Shipbuilding & Dry-Dock Co., Newport News, Va., and the concrete and stone dry-dock at the Charleston (S. C.) Navy-yard. For construction of dams, for water-power development, for building locks and canals, Portland cement has become recognized as indispensable, and illustrations are shown of numerous important undertakings of this character. For building important municipal works, such as water-works, sewerage systems, etc., Portland cement is now used almost exclusively. The various railroads have become large users of Portland cement, and (according to a statement in the book) approximately 3,000,000 barrels of Old Dominion Portland cement have been used during the past several years in railroad work for bridges, viaducts, piers, abutments, culverts, tunnels and stations. This use is shown in many illustrations. Owing to the prevalence of the terebinth, concrete piling is destined to supplant wood altogether for pier construction, because it successfully resists the inroads of this destructive worm. Illustrations of concrete for such work are shown in photographs of pier construction at Brunswick, Ga., and Norfolk, Va. The adaptability of the cement for use on farms is also illustrated. In fact, to users of Portland cement or those contemplating its use this volume will be found of great interest and instruction. The book not only shows the possibilities of Portland cement, but it gives the names of owners, architects, engineers and contractors who can be consulted regarding the advantages secured from its use.

Increasing Use of Iron Fencing.

Due largely to the rapid increase and pronounced development of suburban and country homes, as well as to the general trend of civic improvements, the demand for high-class iron fencing and entrance gates has shown a great increase in recent years. The iron fence plays a conspicuous part in these improvements, readily adapting itself to the various styles of architecture and general surroundings, and can often be so constructed as to seem a part of the house and grounds. Among the companies which have given much time and effort to promoting the use and artistic development of the iron fence and entrance gates is the Stewart Iron Works Co., Cincinnati, Ohio. This company manufactures plain and ornamental steel and iron fences, ornamental iron and wire work, artistic gateways, lawn furniture, etc., and the demand for its products has constantly increased. To meet this it has recently completed the erection of another warehouse and made an addition to its factory, which is nearly completed, enlarging the capacity of its plant about one-third.

FINANCIAL NEWS

The MANUFACTURERS' RECORD invites information about Southern financial matters, items of news about new institutions, dividends declared, securities to be issued, openings for new banks, and general discussions of financial subjects bearing upon Southern matters.

Review of the Baltimore Market.

Office MANUFACTURERS' RECORD,
Baltimore, Md., October 27.

The Baltimore stock market was generally quiet during the last week excepting for active interest and trading in Atlantic Coast Line certificates because of the proposed new financing on November 16, when a new mortgage of \$200,000,000 and a convertible bond issue of \$22,500,000 will be acted upon by the stockholders, besides an increase in the common stock sufficient to provide for the convertible bonds. The certificates advanced steadily.

In the trading United Railways common sold from 13½ to 13; do. trust certificates, 13½; do. income bonds, 58; do. funding 58, 84½ to 83½; do. funding scrip, 85 to 84; United 4s, 87½ to 86½; United Light & Power 4½s, 92½; Consolidated Gas, Electric Light & Power preferred, 80 to 82; Consolidated Gas 6s, 100½ to 100½; do. 4½s, 95; Seaboard Company common, 17; do. second preferred, 36 to 35; Seaboard 4s, certificates, 80½ to 80; do. three-year 5s, 99 to 98½; do. 10-year 5s, 99½ to 99½; do. adjustment 5s (when issued), 69; Mt. Vernon-Woodberry Cotton Duck 5s, 78 to 77½; G. B. S. Brewing common, 2½; do. incomes, 14½; do. 1sts, 44½ to 44.

Bank stock sold thus: Marine, 40; Merchants', 166; Union, 122½; Mechanics', 28½ to 28.

Maryland Casualty sold from 118 to 120; Mercantile Trust, 150½; United States Fidelity & Guaranty, 142 to 140; American Bonding, 77½ to 77; International Trust, 135; Fidelity & Deposit, 157 to 155.

Other securities were traded in as follows: Northern Central Railway stock, 105½ to 106; Anacostia & Potomac 5s, 102½; do. guaranteed, 103½ to 104; Atlantic Coast Line consolidated 4s, 96 to 95½; do. new 4s, certificates, 93½ to 95½; Atlantic Coast Line of Connecticut, 32½; Atlantic Coast Line equipment 4s, September, 1912, 98½; Baltimore & Harrisburg 1st 5s, 105 to 106; Georgia Southern & Florida 5s, 109½ to 108½; Houston Oil common, 8¾ to 8¾; do. preferred, 39½; Merchants & Miners' Transportation Co., voting trust, 80 to 81½; Baltimore City 3½s, 1930, 98; do. do. 1950, 97½; do. 5s, 1916, F. L., 105½; Consolidation Coal, 102½; do. ex-dividend, 99½; Coal & Iron Railway 5s, 101½; Columbia & Greenville 1sts, 108½; Lake Roland Elevated 5s, 112½; Savannah, Florida & Western 5s, 112½; Maryland, Delaware & Virginia preferred, 10; Atlanta Consolidated Street Railway 5s, 105; Fairmont & Clarksburg Traction 5s, 96½ to 96½; Maryland Electric 5s, 98½ to 98; Baltimore Traction (North Baltimore Division) 5s, 113½; Alabama Consolidated Coal & Iron 5s, 84½; Norfolk & Portsmouth Traction stock, 18¾; Norfolk City water 5s, 1922, 105; West Virginia Central 6s, 101½; Macon Railway & Light 5s, 95; Virginia Midland 2d, 101½.

SECURITIES AT BALTIMORE.

Last Quotations for the Week Ended
October 27, 1909.

Railroad Stocks.	Par.	Bid.	Asked.
Atlantic Coast of Conn.	100	37	35
Georgia Sou. & Fla.	100	33	35
Georgia Sou. & Fla. 1st Pfd.	100	32½	35
Georgia Sou. & Fla. 2d Pfd.	100	32	35
Norfolk Railway & Light	25	19	20½
Seaboard Company Common	100	17	18
Seaboard Company 2d Pfd.	100	35	40
United Rys. & Elec. Co.	100	50	12½

Bank Stocks.	Par.	Bid.	Asked.
Citizens' National Bank	100	38½	40
Commer. & Far. Nat. Bank	100	85	110
First National Bank	100	135	140
Merchants' National Bank	100	165	170
National Bank of Baltimore	100	125	135
National Bank of Commerce	100	125	135
National Howard Bank	100	13	15
National Mechanics' Bank	100	27½	28
National Union Bank of Md.	100	123½	123
Second National Bank	100	125	130
Third National Bank	100	130	135
Western National Bank	100	20	38½

Trust, Fidelity and Casualty Stocks.	Par.	Bid.	Asked.
American Bonding Co.	25	77½	77½
Baltimore Trust & Guaranty	100	257½	300
Continental Trust	100	215	225
Fidelity & Deposit	100	155	158
Fidelity Trust	100	200	210
International Trust	100	134	144
Maryland Casualty	25	120	120
Mercantile Trust & Deposit	50	15	14½
Union Trust	50	72	72
U. S. Fidelity & Guaranty	100	139½	141

Miscellaneous Stocks.	Par.	Bid.	Asked.
Ala. Con. Coal & Iron	100	57	57
Ala. Con. Coal & Iron Pfd.	100	73	73
Con. Cotton Duck Pfd.	50	27	27
Con. Gas, Elec. L. & P. Com.	100	20	40
Con. Gas, Elec. L. & P. Pfd.	100	80	82
Consolidation Coal	100	102½	103½
G. B. S. Brewing Co.	100	2	2½
Georges Creek Coal	100	97	97
Mer. & Miners' Trans. Co.	100	79	79

Railroad Bonds.	Par.	Bid.	Asked.
Atlantic Coast Line 1st 4s, 1952	100	95½	95½
Atlantic Coast Line 4s, Cfs.	100	94½	95½
At. Coast Line Com. 4s, Cfs., 5-20s	100	92	93
Atlan. Coast Line (Conn.) 4s, Cfs.	100	87	90
Atlan. Coast Line (S. C.) 4s, 1948	100	99	99
Balto. & Harrisburg 5s, 1936	100	102½	103
Carolina Central 4s, 1949	100	92½	95
Coal & Iron Railway 5s, 1920	100	101½	102½
Col. & Green. 1st 6s, 1916	100	109	109
Florida Central & Penin. Con. 5s	100	106	106
Florida Southern 4s, 1940	100	93	96
Georgia & Alabama 5s, 1945	100	104½	105
Georgia, Car. & North. 1st 5s, 1920	100	104	105
Georgia Pacific 1st 6s, 1922	100	116	117
Georgia South. & Fla. 1st 5s, 1945	100	108½	109½
Maryland & Penna. 4s, 1951	100	95	97
Macon, Dublin & Savannah 5s	100	92½	95
Piedmont & Cum. 1st 5s, 1911	100	90	100
Potomac Valley 1st 5s, 1941	100	105	106
Savannah, Fla. & West. 5s, 1934	100	112½	112½
Seaboard Air Line 4s, Cfs.	100	79	80
Seaboard Air Line 5s, 10-year, 1911	100	99½	99½
Seaboard Air Line 5s, 3-year	100	98½	99
Seaboard Adjustment 5s	100	68	69
Seaboard & Roanoke 5s, 1926	100	107½	107½
Silver Spgs., Ocala & Gulf 4s, 1918	100	96½	97
South Bound 5s, 1941	100	107	107
Virginia Midland 2d 6s, 1911	100	101	102
Virginia Midland 3d 6s, 1916	100	109	112
Virginia Midland 5th 5s, 1926	100	107	108½
Western Maryland 4s, 1952	100	83	84½
Western N. C. Con. 6s, 1914	100	106½	107½
West Va. Central 1st 6s, 1911	100	101½	101½
Wilmington & Weld. Gold 5s, 1935	111½	111½	113

Street Railway Bonds.	Par.	Bid.	Asked.
Anacostia & Potomac 5s, 1949	100	102½	103
Anacostia & Potomac 5s, 1949	100	103½	103½
Atlanta Con. Street Railway 5s	100	105	105
Balto. City Pass. 5s, 1911	100	106½	107
Balto., Sp. Pt. & C. 4½s	100	92	93½
Balto. Trac. 1st 5s, 1929	100	109½	109½
Balto. Trac. (N. B. Div.) 5s, 1942	112½	112½	114

Central Ry. Con. 5s (Balto.), 1932	100½	100½
Central Ry. Ext. 5s (Balto.), 1932	100½	100½
Charleston Con. Elec. 5s, 1939	89½	91
City & Suburban 5s (Balto.), 1922	108½	108½
City & Suburban 5s (Wash.), 1948	103	104½
Knoxville Trac. 1st 5s, 1928	104½	105
Lake Roland Elevated 5s, 1942	113	113
Lexington Railway 1st 5s, 1949	98	98
Macon Ry. & Lt. 1st Con. 5s, 1953	94½	95½
Maryland Electric Railways 5s	97½	98
Memphis Street Railway 5s	99	100
Metropolitan 5s (Wash.), 1925	112	112
Newport News & Old Pt. 5s, 1938	95	96
Norfolk & Portsmouth Trac. 5s	82½	82½
Norfolk Railway & Light 5s	99½	99½
United Railways 1st 4s, 1949	86½	86½
United Railways Income 4s, 1949	57½	58
United Railways Funding 5s	83½	84

Miscellaneous Bonds.	Par.	Bid.	Asked.
Ala. Con. Coal & Iron 5s	84	84½	84½
Baltimore Electric 5s	89	90½	90½
Consolidated Gas 6s, 1910	100½	100½	100½
Consolidated Gas 4½s	94½	95	95
Consolidation Coal (Ct.) 4½s	96½	96½	96½
G. B. S. Brewing 1st 4s	44	44½	44½
G. B. S. Brewing Inc. 4s	14½	15	15
Maryland Steel Co. 5s	100	102½	102½
Maryland Telephone 5s	99½	99½	99½
Mt. Vernon-Woodberry Cot. Duck 5s	77½	78	78
United Elec. L. & P. 4½s	92½	93½	93½

SOUTHERN COTTON-MILL STOCKS.

Quotations Furnished by Hugh MacRae & Co., Wilmington, N. C., for
Week Ending October 25.

Abbeville Cotton Mills (S. C.)	Bid.	Asked.
Aiken Mfg. Co. (S. C.)	70	71
American Spinning Co. (S. C.)	85	85
Anderson Cotton Mills (S. C.)	56	60
Arkwright Mills (S. C.)	100½	100½
Augusta Factory (Ga.)	65	70
Avondale Mills (Ala.)	115	125
Belton Mills (S. C.)	119	121
Bibb Mfg. Co. (Ga.)	114	114
Brandon Mills (S. C.)	97	99
Cabarrus Cotton Mills (N. C.)	125	125
Chadwick-Hoskins Mfg. Co. (N. C.)	100	100
Chadwick-Hoskins Mfg. Co. (N. C.)	102	102

Chiquola Mfg. Co. (S. C.)	Bid.	Asked.
Clifton Mfg. Co. (S. C.)	106	106
Clifton Mfg. Co. (S. C.) Pfd.	99	101
Clinton Cotton Mills (S. C.)	120	130
Columbus Mfg. Co. (Ga.)	93	98
Courtenay Mfg. Co. (S. C.)	97	100
Dallas Mfg. Co. (Ala.)	97	106
Darlington Mfg. Co. (S. C.)	74	76
Drayton Mfg. Co. (Ala.)	100	100

Eagle & Phenix Mills (Ga.)	Bid.	Asked.
Easley Cotton Mills (S. C.)	165	170
Enoree Mfg. Co. (S. C.)	52	62
Enoree Mfg. Co. (S. C.) Pfd.	95	100
Enterprise Mfg. Co. (Ga.)	80	90
Exposition Cotton Mills (Ga.)	240	240
Gaffney Mfg. Co. (S. C.)	75	81
Gainesville Cotton Mills (Ga.)	68	75
Granby Cot. Mills (S. C.) 1st Pfd.	80	80
Granville Mfg. Co. (S. C.)	100	145
Greenville Cotton Mills (S. C.)	58½	68
Grendel Mills (S. C.)	112	114½
Henrietta Mills (N. C.)	175	175
Kling Mfg. Co., John P. (Ga.)	95	100
Lancaster Cotton Mills (S. C.)	125	146
Lancaster Cot. Mills (S. C.) Pfd.	97	100
Langley Mfg. Co. (S. C.)	90	100
Laurens Cotton Mills (S. C.)	120	125
Limestone Mills (S. C.)	150	175
Lockhart Mills (S. C.)	78	90
Lockhart Mills Pfd.	99	100
Loray Mills (N. C.) Pfd.	95	97½
Marlboro Cotton Mills (S. C.)	83½	86
Mayo Mills (N. C.)	165	185
Mills Mfg. Co. (S. C.)	97	105
Mills Mfg. Co. (S. C.) Pfd.	109	109
Monahan Mills (S. C.)	118	122
Monahan Mills (S. C.)	118	122
Monarch Cotton Mills (S. C.)	109	112
Newberry Cotton Mills (S. C.)	120	140
Norris Cotton Mills (S. C.)	122	126
Olympia Cot. Mills (S. C.) 1st Pfd.	78	87½
Orangeburg Mfg. Co. (S. C.) Pfd.	80	98
Orr Cotton Mills (S. C.)	100	101
Pacolet Mfg. Co. (S. C.)	101	101
Pacolet Mfg. Co. (S. C.) Pfd.	102	102
Pelzer Mfg. Co. (S. C.)	150	160
Piedmont Mfg. Co. (S. C.)	173	177
Poe Mfg. Co. (S. C.)	160	165
Richland Cot. Mills (S. C.) 1st Pfd.	45	45
Raleigh Cotton Mills (N. C.)	100	106
Roanoke Mills (N. C.)	153	165
Saxon Mills (S. C.)	127	127
Sibley Mfg. Co. (Ga.)	62½	65
Spartan Mills (S. C.)	130	140
Springdale Mills (S. C.)	100	100
Tucapau Mills (S. C.)	250	250
Trion Mfg. Co. (Ga.)	140	140
Union-Buttalo Mills (S. C.) 1st Pfd.	72	73
Victor Mfg. Co. (S. C.)	130	130
Warren Mfg. Co. (S. C.)	93½	95
Warren Mfg. Co. (S. C.) Pfd.	106	109
Washington Mills (Va.)	28	28
Washington Mills (Va.) Pfd.	105	109
Whitney Mfg. Co. (S. C.)	130	140
Williamston Mills (S. C.)	120	120
Wisconsin Mills (N. C.)	120	120
Woodruff Cotton Mills (S. C.)	140	155
Woodside Cotton Mills (S. C.)	96	100
Woodside Cot. Mills (S. C.) Pfd.	95	98

Quotations Furnished by William S. Glenn, Broker, Spartanburg, S. C.,
for Week Ending October 25.

Abbeville Cotton Mills (S. C.)	Bid.	Asked.
Aiken Mfg. Co. (S. C.)	75	75
American Spinning Co. (S. C.)	85	85
Acadia Mills (S. C.)	95	95
Arkwright Cotton Mills (S. C.)	100	105
Augusta Factory (Ga.)	65	70
Avondale Mills (Ala.)	116	116
Belton Mills (S. C.)	120	120
Brogan Mills (S. C.)	30	30
Cannon Mfg. Co. (N. C.)	135	135
Cabarrus Cotton Mills (N. C.)	120	120
Chiquola Mfg. Co. (S. C.)	155	155
Clifton Mfg. Co. (S. C.)	105	110
Clinton Cotton Mills (S. C.)	110	110
Columbus Mfg. Co. (Ga.)	93	100
Courtenay Mfg. Co. (S. C.)	96	96
Dallas Mfg. Co. (Ala.)	99	99
Darlington Mfg. Co. (S. C.)	74	74
D. E. Converse Co. (S. C.)	100	105
Drayton Mills (S. C.)	95	100
Eagle & Phenix Mills (Ga.)	117	117
Easley Cotton Mills (S. C.)	158	162
Enoree Mfg. Co. (S. C.)	52	62
Enoree Mfg. Co. (S. C.) Pfd.	90	100

Enterprise Mfg. Co. (Ga.)	75	...
Exposition Cotton Mills (Ga.)	194	300
Gainesville Cotton Mills (Ga.)	90	95
Glenwood Cotton Mills (S. C.)	90	95
Gluck Mills (S. C.)	92	95
Graniteville Mfg. Co. (S. C.)	155	155
Grendel Mills (S. C.)	110	115
Hartsville Cotton Mill (S. C.)	150	...
Henrietta Mills (N. C.)	150	165
Inman Mills (S. C.)	105	110
Lancaster Cotton Mills (S. C.)	115	125
Lancaster Cot. Mills (S. C.) Pfd.	97	...
Langly Mfg. Co. (S. C.)	95	100
Laurens Mills (S. C.)	127	...
Limestone Mills (S. C.)	160	...
Lockhart Mills (S. C.)	98	98
Lockhart Mills (S. C.)	98	98
Loray Cotton Mills (N. C.) Pfd.	92	94
Marlboro Cotton Mills (S. C.)	83	...
Mills Mfg. Co. (S. C.)	92	98
Molokhon Mfg. Co. (S. C.)	106	...
Monaghan Mills (S. C.)	117	122
Monarch Cotton Mills (S. C.)	104	...
Newberry Cotton Mills (S. C.)	115	...
Ninety-Six Cotton Mills (S. C.)	135	...
Norris Cotton Mills (S. C.)	117	...
Orr Cotton Mills (S. C.)	100	116
Paelet Mfg. Co. (S. C.)	98	100
Peizer Mfg. Co. (S. C.)	98	158
Piedmont Mfg. Co. (S. C.)	175	...
Poe Mill Co., F. W. (S. C.)	155	...
Saxon Mills (S. C.)	125	...
Sibley Mfg. Co. (Ga.)	60	66
Spartan Mills (S. C.)	123	...
Tucapau Mills (S. C.)	250	...
Union-Buttalo (S. C.) 1st Pfd.	77	80
Union-Buttalo (S. C.) 2d Pfd.	20	25
Victor Mfg. Co. (S. C.)	125	130
Warren Mfg. Co. (S. C.)	92	96
Washington Mills (S. C.) Pfd.	90	108
Washington Mills (Va.)	120	...
Whitney Mfg. Co. (S. C.)	120	...
Wilsacett Mills (N. C.)	135	135
Woodruff Cotton Mills (S. C.)	140	...
Woodside Cotton Mills (S. C.)	94	...
Watts Mills (S. C.)	84	90
Williamston Mills (S. C.)	116	...

Southern Investments

100,000 6 per cent. Industrial Bonds.
100,000 7 per cent. Preferred Stock.
100,000 of Common Stock.
In strongest mill corporations.
Also 100,000 first mortgage real estate loans.
F. C. ABBOTT & CO.,
Charlotte, N. C.

Established 1835.

The Merchants National Bank

South and Water Sts., BALTIMORE, MD.

DOUGLAS H. THOMAS, President.
WM. INGLE, Vice-President and Cashier.
J. O. WANDS, Asst. Cashier.
JOHN B. H. DUNN, Asst. Cashier
Capital, \$1,500,000
Surplus and Profits, - - - \$900,000
Deposits \$12,000,000

Accounts of Banks, Bankers, Corporations
and Individuals solicited. We invite corre-
spondence.

JOHN W. DICKEYSOUTHERN
SECURITIES

AUGUSTA, GEORGIA

THE FIRST NATIONAL BANK

OF KEY WEST, FLA.

United States Depository and Disbursing
Agent.

Capital, - - - - \$100,000
Surplus and Undivided Profits - 40,000
A general banking business transacted.
Special attention given to collections.

DELAWARE TRUST CO.
[WILMINGTON, DEL.]

EDWARD T. CANNY, President.
J. EMMETT SMITH, General Counsel and
Vice-President.
HARRY W. DAVIS, Secretary.

Fully Equipped Department for the
Organization of Corporations under
advice of Counsel, and for the Regis-
tration of Corporations as required
by the Delaware Law.

Represents over 500 Domestic and
Foreign Corporations.
The Delaware Corporation Law is
Broad, Liberal, Safe and Stable.
Granting and annual taxes low.

Hugh MacRae & Co.

BANKERS

MISCELLANEOUS SOUTHERN SECURITIES

COTTON MILL STOCKS

WILMINGTON, N. C.

WASHINGTON, D. C. 408 Colorado Bldg.

**Southern Steam
Railroad Securities**

DEALT IN

F. J. LISMAN & CO.

Specialists in Steam R. R. Securities

Members New York Stock Exchange,

30 Broad Street NEW YORK

404 Connecticut Mutual Bldg., Hartford.

Land Title & Trust Bldg., Philadelphia.

CROSS CREEK COAL COMPANY 9% Gold
bonds, total issue \$250,000. All have been dis-
posed of to investors and bankers in differ-
ent parts of the country, including Saco,
Maine; Boston, Mass.; Rochester, N. Y.;
Westfield, Olean, Fredonia and Buffalo, N. Y.;
Franklin, Coudersport, Pittsburgh, Smeth-
port, Shamokin and Port Allegany, Pa.;
Columbus, Dayton and Springfield, Ohio;
Northfork, Welch and Bluefield, W. Va.;
Roanoke, Va.; Nashville, Knoxville, Jasper,
Chattanooga and South Pittsburg, Tenn.;
Atlanta, Ga.; Lowell, Mass.; East Orange,
N. J., and Washington, D. C., until now
there are but \$90,000 of them left. These
bonds are first lien on 7000 acres of the best
coal properties in Tennessee, and \$75,000 of
this money is being spent on an up-to-date
coal works with a capacity of about 1000
tons a day. Particulars will be furnished
from the office, 1006 Mutual Life Building,
Buffalo, N. Y. P. S.—A bonus of preferred
stock will be given with the bonds.

GEO. M. CLARK

Auditor and Public Accountant

Room 315 James Building

CHATTANOOGA, TENN.

**INVESTMENT
SECURITIES**

Southern Stocks and Bonds
Municipal and Corporation
Cotton Mill Stock a Specialty

WM. S. GLENN - Broker - SPARTANBURG, S. C.

INTERNATIONAL TRUST CO.

OF MARYLAND

BALTIMORE, MD.

Capital and Surplus, \$2,500,000

MAKES A SPECIALTY OF SOUTHERN BUSINESS

PRIVATE, State and National Bank Accounts. Cotton
Mill Accounts. Estate Administration. Accounts in-
vited from General Manufacturers and Business Men.
High-Class Bonds and Other Forms of Investment. Interest
Allowed on Deposits Subject to Check and Special Rates Made
on Time Deposits. Your Business is Solicited. Correspond-
ence Invited.

OFFICERS

DOUGLAS H. GORDON,
President.
SUMMERFIELD BALDWIN,
Vice-President.
SAMUEL C. ROWLAND,
Vice-President.
CHAS. D. FENHAGEN,
Secretary and Treasurer
WALTER D. FOCKE,
Asst. Secy. and Asst. Treas.

EXECUTIVE COMMITTEE

ISAAC H. DIXON, Chairman;
SUMMERFIELD BALDWIN,
RICHARD H. EDMONDS,
SAMUEL C. ROWLAND,
WM. C. SEDDON,
DOUGLAS H. GORDON.
STEVENSON A. WILLIAMS

Progressive and Conservative Trust and Banking Institution

**THE BALTIMORE
TRUST & GUARANTEE COMPANY**

BALTIMORE, MD.

Capital, - - - \$800,000
Surplus, - - - \$2,100,000

THOS. H. BOWLES, President

Acts as Executor, Administrator,
Trustee, Receiver for Firms, Individuals
or Corporations.

Receives Deposits subject to Check,
and allows Liberal Rates of Interest
thereon.

Bank of Richmond

Capital and Surplus, \$1,500,000

RICHMOND, VA.

JOHN SKELTON WILLIAMS, President.
FRED'K E. NOLTING, 1st Vice-President.
T. K. SANDS, 2d Vice-President and Cashier.
H. A. WILLIAMS, Assistant Cashier.
L. D. CRENSHAW, Jr., Trust Officer.

In aiding the development of legitimate
business enterprises, this bank believes that
it performs a required duty, and to this end
offers the services of a live, progressive
bank, conservatively managed.

**We Make a Specialty of Buying
Southern Municipal Bonds**

WE PAY THE HIGHEST MARKET PRICES
Correspondence Solicited.

A. J. HOOD & CO.

Penobscot Bldg. DETROIT, MICH.

MANUFACTURERS and JOBBERS

Frequently find it necessary to have
BANKING FACILITIES in addition
to those offered by local banks.

FIRST NATIONAL BANK OF RICHMOND, VA.

With assets of nine million dollars, offers
just the additional facilities required.

Jno. B. Purcell, President.
Jno. M. Miller, Jr., Vice-Pres. and Cashier.

The Delaware Fidelity Trust Co.

Home Office—Dover, Delaware

Is especially interested in the develop-
ment of the South and will assist
substantial enterprises requir-
ing additional capital.

Announces the opening of a branch of-
fice in the city of Philadelphia, where
arrangements may be made for the or-
ganization and consolidation of corpora-
tions, registration of stock, and for act-
ing as trustee in bond issues.

Correspondence solicited.

THE DELAWARE FIDELITY TRUST CO.

1415 Arch Street, Philadelphia, Pa.

The National Exchange Bank
OF BALTIMORE, MD.

Hopkins Place, German and Liberty Sts.

Capital, \$1,000,000

July 15, 1908, Surplus and Profits, \$871,631.60

OFFICERS:

WALDO NEWCOMER, President.
SUMMERFIELD BALDWIN, Vice-Pres.
R. VINTON LANDALK, Cashier.
Wm. J. DELCKER, Asst. Cashier.
O. G. MORROW, Asst. Cashier.
Accounts of Mercantile Firms, Corporations,
Banks, Bankers and Individuals Invited.

**6% FIRST MORTGAGE
SERIAL GOLD BONDS**

This Bank owns and offers \$100,000
Bonds of a well managed Public Utility
Corporation in a prosperous and grow-
ing Southern City.

Price, par and interest, to net 6%.

WRITE FOR PARTICULARS.

Interstate Trust & Banking Co.

213 Camp Street

NEW ORLEANS, LOUISIANA

Capital and Surplus Over One Million Dollars

Baltimore Office Supply Co.

106 S. Eutaw St., Baltimore, Md.

MANUFACTURERS OF
Stamps, Stencils, Seals, Metal Signs, etc.
Office and Bank Supplies.

Write for prices.

**BANK FIXTURES
SHOW CASES STORE EQUIPMENT
COMMERCIAL FURNITURE**

We are manufacturers and specialize on
quality. Ask for references. Information
promptly given.

QUINCY SHOW CASE WORKS, - Quincy, Ill.

GO SOUTH!

Business Opportunities, Investment Secu-
rities, Real Estate, Timber, Mines, Indus-
trial Properties and Mortgages in South-
ern States and Mexico, correspond with

SOUTHERN STATES DEVELOPMENT CO.
GEO. B. EDWARDS, President, New York, N. Y.
Office, Tribune Bldg., Park Row and Nassau St.
Connections in the Principal Cities of Europe.

SURETY BONDS**Fidelity & Deposit Co.**

OF MARYLAND

Home Office, BALTIMORE, MD.

Assets Over \$5,000,000

Pioneer Surety Co. of the South.
Becomes Surety on bonds of every de-
scription.

AGENTS IN ALL PRINCIPAL CITIES

HARRY NICODENUS, Sec'y and Treas., EDWIN WARFIELD, President

"AMERICAN"**STRENGTH
in ROPE
is QUALITY**

Recent government tests show

"AMERICAN" PURE MANILA ROPE to be from 10% to
25% stronger than the standards set by the United States Gov-
ernment for manila ropes of various sizes.



"AMERICAN" ROPE is most economical because it gives the
longest service and the greatest value for the money invested.

Specify "AMERICAN" on your orders and turn rope expense
into rope economy.

WRITE for our booklet "ROPE," with samples and prices.

THE AMERICAN MFG. CO.

MANILA . . SISAL . . JUTE CORDAGE

65 WALL STREET

NEW YORK, N. Y.

TRANSMISSION ROPE

Miss., Water Valley.—The People's Bank is reported to have begun business with G. W. Rayburn president and Vernon R. Patterson cashier.

Mo., Warsaw.—The Farmers and Traders' Bank has filed articles of incorporation; capital \$16,000; directors, James A. Clark, C. R. Freeman, C. L. Morgan and others.

Mo., Wentzville.—The Citizens' Bank of Wentzville has been chartered with \$10,000 capital. Directors, Joseph C. Brown, Henry A. Meyers, Charles Carr, T. B. Walther and John Brueggemann.

Okla., Burbank.—The Farmers' State Bank of Burbank, capital \$10,000, has been granted a commission. Incorporators, W. B. Shapks, W. G. Linn and J. B. Yount.

Okla., Foraker.—The Bank of Foraker has been granted a commission; capital \$105,000. Incorporators, J. B. Roberts, J. T. Dunn and F. M. Roberts.

Okla., Oklahoma City.—The Farmers' National Bank of Oklahoma City has been authorized to begin business; capital \$100,000; J. F. Warren, president; James Chenoweth, vice-president; G. S. Guthrie, cashier, and C. E. Carpenter, assistant cashier.

S. C., Aiken.—Official: The Aiken Savings Bank chartered; capital \$25,000. Incorporators, J. P. McNair, R. W. McCrary, I. N. Eubanks and G. K. Tarle. Reports state business is to begin November 15.

Tenn., Bellbuckle.—The People's Bank & Trust Co. has been incorporated with \$30,000 capital by Omar Shoffner, B. F. Ransom, Sr., Sewell Linch, W. F. McAdams, Ben Ransom, Jr., J. T. Stephenson.

Tenn., Ducktown.—The First National Bank, capital \$25,000, has been authorized to begin business with M. C. King president and M. Kaufman vice-president.

S. C., Easley.—Official: The Easley Building and Loan Association is to be chartered with \$50,000 capital. Incorporators, W. C. Smith, H. C. Hayood, W. M. Hayood and J. A. Robinson.

Tenn., Lebanon.—Official: A bank and trust company is being organized, business to begin about January 15. It will occupy the Lebanon National Bank Building. J. T. Odum and others interested.

Tenn., Wildersville.—The Bank of Wildersville is reported to have begun business; capital \$20,000; president, Ben Jamison; vice-presidents, Sam T. Murphy and J. P. Parker; cashier, W. R. Johnson.

Tex., Beaumont.—Official: The Empire Life Insurance Co. chartered; capital \$150,000; surplus, \$50,000. Officers: Sam Park, president; R. M. Halliwell and Geo. W. Carroll, vice-presidents; J. Austin Strange, secretary; H. M. Hargrove, manager; Dr. W. W. Cunningham, medical director; W. P. Mollette, attorney; T. W. Garrett, treasurer, all of Beaumont; F. S. Withington, consulting actuary, Des Moines, Iowa.

Tex., Caddo Mills.—Official: The First National Bank of Caddo Mills chartered; capital \$25,000. Directors, Geo. L. Van Cleave, president; W. C. Welch and L. T. Johnson, vice-presidents; L. M. Johnson, cashier; Hugh Minton, H. W. Williams of Caddo Mills, and H. W. Williams, C. H. Andrews and Geo. S. Perkins of Greenville, Tex.

Tex., Chapin.—The Chapin Improvement Co. is reported organized to conduct a building and loan association. Among the stockholders are Walter M. Doughty, Geo. P. Brown, V. A. Albers, W. L. Lipscomb, A. E. Chavez, W. B. Barton, John Clesner, D. B. Chapin, Garland Buck, J. C. Wilson, A. Morris, B. A. Morris, A. Y. Baker, E. C. Umland, J. G. Ramsey and others.

Tex., Celina.—The First State Bank of Celina, which represents a consolidation of the First National Bank of Celina and the Farmers and Merchants' State Bank of Celina, has begun business with \$50,000 capital and \$10,000 surplus; B. P. Smith, president; S. J. Lewis and B. F. Gearhart, vice-presidents; J. E. Lipscomb, cashier.

Tex., Pleasanton.—Official: The Martin Abstract Co. incorporated; capital \$20,000; Geo. M. Martin, president, Jourdan, Tex.; W. W. Walling, secretary, San Antonio; Jourdon Campbell, first vice-president, Campbellton, Tex.; Johnnie S. Wallace, second vice-president, Pleasanton, and Jas. A. Walton, treasurer, Jourdan.

Tex., Walnut Springs.—Official: The Texas State Bank of Walnut Springs chartered; capital \$10,000; directors, J. A. Rushing, president; B. E. Seale, cashier; James A. Rushing, John Kirby and Joe Kirby.

Va., Roanoke.—The Old Dominion Finance Co. has been incorporated with from \$1000 to \$5000 capital. Incorporators, C. S. McNulty, president; John W. Woods, vice-president; N. M. Peters, secretary and treasurer.

NEW SECURITIES.

Ala., Linden.—Bids will be received by John E. Hecker, Mayor, until noon November 22 for \$10,000 of 5 per cent. school bonds.

Ala., Montgomery.—The City Council has adopted a resolution authorizing an issue of \$50,000 of 5 per cent. 10-year paying bonds. It is stated Hunt & Cushman of Boston will take the bonds at par and accrued interest.

Ala., Prattville.—Bids will be received until noon November 15 by G. S. Livingston, Judge of Probate, Autauga county, for \$55,000 of courthouse building debt, \$20,000 of jail building debt and \$75,000 of public road 4½ per cent. 30-year bonds.

Ala., West End.—November 22 an election is to be held to vote on \$12,500 of bonds, \$65,000 being for construction of concrete bridges and culverts and \$6000 for completion and furnishing of new schoolhouse and city hall.

Fla., Lakeland.—The election to vote on \$65,000 of school-building bonds is to be held November 18.

Ocala.—Voted: \$45,000 of Irwin county courthouse bonds.

Fla., Panama City.—Bids will be received by R. L. McKenzie, Mayor, until November 10 for \$14,000 of 5 per cent. 15-year water-works, school and street-improvement bonds.

Fla., West Palm Beach.—Reports state that the election called for October 19 to vote on \$200,000 of Palm Beach county road bonds has been postponed until some time in December.

Ga., Cuthbert.—Bids will be opened about the latter part of November or early in December for \$20,000 of 5 per cent. 30-year electric-light and water-works improvement bonds; denomination \$1000 each; D. A. McPherson is Mayor.

Ky., Bellevue.—The report that an election is to be held November 2 to vote on \$37,000 of street improvement and \$8000 of culvert 4 per cent. bonds. Jas. A. Cassidy is Mayor.

Ky., Georgetown.—Reported that an election is to be held November 2 to vote on \$20,000 of filtration and \$5000 of storm-sewer bonds.

Ky., Lexington.—Reported that O'Connor & Kahler of New York have purchased at \$1,069.75 premium \$25,000 of 4½ per cent. 40-year sewer bonds.

Ky., Madisonville.—The election called to vote bonds for water-works has been postponed indefinitely. I. N. Vickers is Mayor.

La., St. Bernard.—Bids will be received until 11 A. M. November 24 by the Commissioners of Bayou Terre-aux-Boeufs Drainage District, St. Bernard parish, for \$60,000 of 10-40-year bonds.

Miss., Sumner.—A. H. Whittier, Mayor, will receive bids until November 1 for \$6000 of 6 per cent. 10-20-year bridge bonds; denomination, \$500.

Miss., P. O. Timberville.—Yallobusha Drainage District No. 1 of Calhoun county has been authorized by the Board of Supervisors to issue \$60,000 of 6 per cent. 10-20-year drainage canal bonds; denomination, \$500; I. F. Smith, clerk.

Miss., Tunica.—Reports that bonds for water-works system are to be issued. George Kausler is Mayor.

Miss., Vicksburg.—Bids will be received until noon November 3 by J. B. Laughlin, Clerk of Warren county, for \$48,000 of 5 per cent. 5-25-year convict-farm bonds.

Mo., California.—Bids will be received until 7:30 P. M. November 1 for \$30,000 of 5 per cent. water-works bonds. Address H. E. Blakeman, City Clerk.

Mo., Festus.—Reported voted: \$8000 of 5 per cent. 10-20-year electric-light improvement bonds.

Mo., Glasgow.—Voted: \$30,000 of electric-light and sewerage bonds. The bonds were sold to the W. K. Compton Bond Co., and it is now investigating the validity of the issue. W. L. Hannaca is Mayor.

Mo., Independence.—An official letter confirms the report that an election is to be held November 2 to vote on \$30,000 of City hall bonds. Llewellyn Jones is Mayor.

Mo., Joplin.—Bids will be received by J. A. Becker, City Treasurer, until 3 P. M. November 6 for \$50,000 of 5 per cent. 5-20-year sewer bonds.

Mo., Kansas City.—Reported that an election will probably be held to vote bonds to build the West Twelfth Street Traffic Way. T. T. Crittenden, Jr., is Mayor.

Mo., Moberly.—Voted: \$150,000 of water-works-plant bonds.

Mo., Savannah.—City will open bids November 1 for \$7500 of 5 per cent. 15-year elec-

tric-light bonds; denomination, \$500. O. F. Spies is Mayor.

N. C., Jefferson.—Defeated: \$250,000 of Ashe county railroad-bond bonds.

N. C., Nashville.—Voted: \$30,000 of public road improvement bonds.

Okla., Bartlesville.—Voted: \$40,000 of city hall and \$20,000 of fire-station bonds.

Okla., Blackwell.—Voted: \$12,500 of filtration, \$5000 of fire-department and jail and \$2500 of street-improvement bonds.

Okla., Enid.—A resolution has been adopted by the Board of Education providing that an election be held to vote on \$250,000 of school-building bonds.

Okla., Guthrie.—Reported that an election will soon be held in Logan county to vote on \$300,000 of road bonds.

Okla., Hartshorne.—The Freeborn Engineering & Construction Co. of Kansas City, Mo., is reported to have purchased at par \$105,000 of 5 per cent. water and sewer bonds.

Okla., Madill.—Voted: \$20,000 of sewer and \$2500 of street-crossing bonds.

Okla., Okeene.—Bids will be received until November 1 by O. G. Graalman, town clerk, for \$30,000 of 6 per cent. 25-year water-works bonds.

Okla., Sapulpa.—Voted: \$315,000 of water, sewer and fire apparatus bonds.

Okla., Tulsa.—Voted: \$700,000 of Tulsa county courthouse, jail, road and bridge bonds. C. F. Rogers is county clerk.

Okla., Verden.—Defeated: \$27,000 of water-works bonds.

Okla., Woodward.—The Grey Realty Co. of Woodward is reported to have purchased \$70,000 of 5 per cent. 25-year school bonds of Woodward school district No. 1 at 100.27.

Tenn., Chattanooga.—Seasongood & Mayor of Cincinnati have purchased the \$150,000 of 4½ per cent. Hamilton county school bonds at \$3055 premium; maturity 20 years.

Tenn., Humboldt.—The report that \$30,000 of street bonds were voted has been officially confirmed. N. A. Senter is Mayor.

Tenn., Memphis.—No sale was made October 11 of the \$425,000 street-improvement bonds.

Tex., Abilene.—Reports state that the \$100,000 of North Park school-building bonds have been approved and will be placed on sale immediately.

Tex., Anahuac.—Chambers county has voted \$60,000 of 5 per cent. 1-20-year road district bonds; denomination \$500. As soon as the bonds have been approved and registered they will be offered for sale. H. H. Jackson is County Judge.

Tex., Anson.—Bids will be opened November 22 for \$100,000 of 5 per cent. 40-year Jones county courthouse bonds. Jas. P. Stinson is county judge.

Tex., Archer City.—Bids will be received by R. S. Morrison, attorney for Archer county, until 4 P. M. December 1 for \$20,000 of 4 per cent. 5-40-year jail bonds.

Tex., Austin.—The Attorney-General has approved the following securities: \$100,000 of 4½ per cent. bonds of Cooke county Precinct No. 1; \$15,000 of 4 per cent. Foard county road and bridge bonds; \$15,000 of 5 per cent. Mercedes independent school district bonds; \$40,000 of 5 per cent. San Saba independent school district bonds; \$12,500 of 5 per cent. Van Alstyne school building bonds; \$176,000 of 5 per cent. 40-year bonds of Hidalgo county drainage district No. 1; \$7000 of 5 per cent. 10-20-year Kendall county courthouse bonds; \$2000 of 5 per cent. 10-year Greenville water-works bonds; \$10,000 of 5 per cent. 5-40-year Luling school building bonds; \$1500 of 5 per cent. 20-year Brown county school district No. 49 schoolhouse bonds; \$4000 of 5 per cent. 20-year Dallas common school district No. 76

schoolhouse bonds; \$7000 of 5 per cent. 10-15-year school district No. 6 and \$1200 of 5 per cent. 10-20-year district No. 63 Denton county schoolhouse bonds.

Tex., Beeville.—November 6 an election is

**WE OFFER,
SUBJECT TO PRIOR SALE**

**6% GOLD
BONDS**

**The Mobile Portland Cement
and Coal Company**

offers at par and accrued interest \$500,000 worth of twenty-year, first mortgage, 6 per cent. gold bonds, in denominations of \$100, \$500 and \$1000; subscriptions paid in full or one-fifth cash and balance quarterly; this offer subject to prior sale. (Total authorized bond issue \$3,000,000.)

Securities

TRUST DEEDS constituting the first mortgage on 1768 acres of valuable cement land, 10,017 acres of very rich coal lands, perpetual lease on 4000 acres gas and oil lands, large dock and storage property in Mobile, Alabama, and improved steamboats and barge line, etc., to the value of \$4,775,000.

**Carnegie Trust Company
of N. Y. City**

trustee for these securities, hold all these properties in trust for the bondholders, and money from sale of bonds can only be used for improvement of property.

Investors' Opportunity

to participate in the earnings of the company. With each one hundred dollar (\$100) bond we will give one share of common stock, par value \$100, fully paid and non-assessable. This offer is subject to withdrawal without notice.

It is estimated that the annual profits of the Company from coal, cement, transportation and other resources will be \$1,850,000, or ten times the interest on the bond issue, which should assure the stockholders large dividends. (There is no preferred stock.)

Location and Market

Place Mobile Portland Cement & Coal Co. Beyond Competition.

For further information write us for illustrated prospectus or mail your subscription now to

CARL O. SPARRWARDT,
Financial Manager,

**Mobile Portland
Cement & Coal Co.**

Van Antwerp Bldg., Mobile, Ala.

OFFICERS

EDWARD L. RUSSELL, Pres., Mobile.
Vice-Pres. Mobile & Ohio R. R.
P. J. LYONS, Treas., Mobile. Vice-Pres.
City Bank and Trust Co. Mayor of Mobile.

O. GERLACH, Ph.D.

Former Mgr. Iola Portland Cement Co., Iola, Kan.
Mgr. of Construction and Operation.

Subscriptions will be received by the following banks, Mobile, Ala.:

First National Bank.
City Bank & Trust Co.
Central Trust Co.
Peoples' Bank.
Bank of Mobile.

INTERSTATE AUDIT COMPANY

729 15th Street N. W., WASHINGTON, D. C.

DEVISERS OF BUSINESS SYSTEMS

MINIMIZING AND SIMPLIFYING ACCOUNTING METHODS

THE AMERICAN AUDIT CO.

E. A. LEITCH, Resident Manager.

Mutual Building, RICHMOND, VA.

Our reports are accepted by the leading financiers of the world, and are frequently made the basis of credit.

Home Office, 100 Broadway, New York

Branches in all Principal Cities

Incorporated Under Special Act of Legislature

BALTIMORE AUDIT COMPANY

1027-1029 Calvert Bldg., BALTIMORE, MD.

All work executed by or under direct supervision of Certified Public Accountants

0
r
t
e
i

t
i
e
e

1

and

1-
2-
3-
4-
5-

1-
D,
2,
3

D.

13

2.

R

10.

10

01-

Y

MA

tie:

1

10